









# City of Blythe Climate Action Plan

May 2013



**2013 Climate Action Plan:  
Leadership in Energy Efficiency**

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## I. Executive Summary

The City of Blythe is proud to have completed this report, the “2013 Climate Action Plan: Leadership in Energy Efficiency.” It falls within a broader Sustainability Planning context supported by Southern California Edison (SCE) and its ratepayers in a program called “Green for Life.”

With this Plan, Blythe is joining an increasing number of California local governments committed to addressing climate change at the local level. It is taking action now to reduce greenhouse gas (GHG) emissions within its own operations and within the overall community.

With a recently completed Greenhouse Gas Inventory, Blythe is prepared to set GHG reduction goals and measure progress toward these goals, including the statewide target for 1990 levels by 2020, set by AB 32

The City will use common-sense approaches to reduce energy use and waste, create local jobs, improve air quality, preserve the local landscape and history, and in other ways benefit Blythe for years to come.

The Plan is a framework for the development and implementation of policies and programs that will reduce the City’s emissions. It addresses the major sources of emissions in seven spheres of daily life:

1. Where We Live (Residential)
2. Where We Work (Business)
3. How We Build (Building)
4. How We Get Around (Transportation)
5. How We Govern (Municipal)
6. Where We Visit and Play (Hospitality/Recreation)
7. How We Teach and Learn (Education)

For each sphere, the Plan presents programs or policies that can be implemented by Blythe to meet its goals. These are linked with the City’s Greenhouse Gas Inventory. A portfolio of 74 measures has been selected for potential implementation over eight years. Some of the measures are already planned or even in process, and are included because of their anticipated impact. Each recommendation carries information about how the measure will impact the community and approximately what it will cost.

This Climate Action Plan (CAP) is the root of a comprehensive suite of sustainability services including the City’s 2013 Greenhouse Gas Inventory (GHG Inventory)<sup>1</sup>, its 2013 Energy Action

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<sup>1</sup> City of Blythe 2013 Greenhouse Gas Inventory, prepared by EcoMotion for the Coachella Valley Association of Governments, May 2013.

Plan<sup>2</sup>, the Voluntary Green Building Program,<sup>3</sup> a municipal building Energy Benchmarking Policy,<sup>4</sup> and a municipal building Retro-Commissioning Policy.<sup>5</sup> Together, these documents support this Plan and position the City for cost-effective, energy-efficiency savings and carbon dioxide reductions.

## Energy Efficiency

The subtitle “Leadership in Energy Efficiency” defines the Plan. Energy efficiency provides rich opportunities for Blythe and taking steps to improve efficiency will lead to jobs—for example, jobs for weather-proofing houses, providing energy audits, installing new technologies or upgraded equipment. Programs that keep electricity costs low attract and keep businesses. This type of economic development is a top City priority.

***This Plan achieves the win-win-win solution of creating jobs and cost savings, while reducing greenhouse gas emissions.***

Many efficiency measures are simple and cost-effective: Homes that are not properly sealed in desert summers increase the need for cooling and can be drafty in the winter. They can be upgraded with dramatic results, as can aging appliances.

Behavioral change to conserve and maximize the value of energy use is nearly free and can also result in significant levels of dollar and energy savings, often at peak periods. Measures such as these are planned by Blythe, building on a track record of energy efficiency implementation.

## Climate Action Targets

Based on the City’s GHG Inventory, if Blythe were to continue with “Business-as-Usual,” its carbon footprint will remain nearly flat from 2010 to 2020 as new technologies and federal and state programs will more than offset population growth and increasing use of energy for comfort and convenience.

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<sup>2</sup> City of Blythe 2013 Energy Action Plan, prepared EcoMotion for the Coachella Valley Association of Governments, May 2013.

<sup>3</sup> City of Blythe Voluntary Green Building Program, Prepared by Terra Nova and Interactive Design for CVAG, June 2012. Please see Appendix.

<sup>4</sup> City of Blythe Benchmarking Policy, Prepared by Terra Nova and BSE Engineering for CVAG, June 2012. Please see Appendix.

<sup>5</sup> City of Blythe Retro-Commissioning Policy prepared by Terra Nova and BSE Engineering for CVAG, June 2012. Please see Appendix.

**Figure 1: Blythe Emissions Projections to 2020**

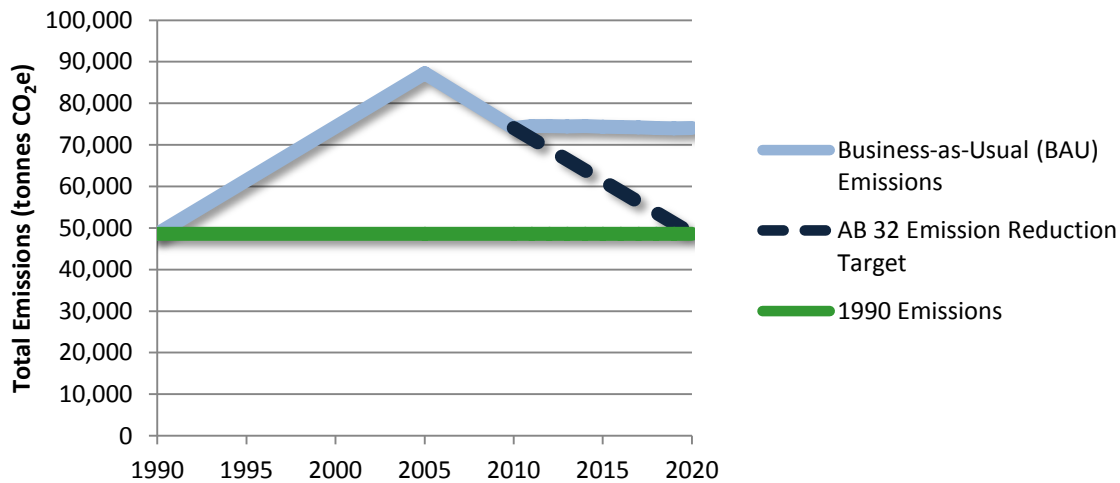


Figure 1 above is based on available data from 1990, 2005, and 2010. The blue line depicts projected emissions in a “Business-As-Usual” scenario. The darker green floor represents 1990 emission levels based backcasted estimates. The dashed line suggests the trajectory that the City will follow to achieve its target 1990 levels.

The emissions reductions goals are summarized below in Table 1. The standard measurement for emissions is metric tons of carbon dioxide, or “tonnes” of CO<sub>2</sub>. For Blythe to reduce its emissions to the statewide target of 1990 levels by 2020, it will have to reduce emissions by 25,429 tonnes, a 34.3% reduction from the 2010 baseline year.

**Table 1: City of Blythe 1990, 2010, and 2020 Projected Emissions**

Scenario	Total Emissions (Tonnes CO <sub>2</sub> e)	Tonnes over 1990	% Reduction Needed
1990 Emissions Level	48,632	-	-
2010 Baseline	74,126	25,493	34.4%
2020 Business-as-Usual	74,061	25,429	34.3%

The Climate Action Plan describes the steps the City and its residents can take to reach these targets, applying policies, programs, and initiatives.

## Summary Costs and Benefits

This Plan presents 74 measures that can be tailored for the City of Blythe to be in full compliance with State of California law. Many of the measures are underway; others can be



accomplished through public/private partnerships, or as grants and other special funding sources are provided.

The measures presented in this Plan represent an estimated cost to the City of \$986,210 over eight years. This investment will leverage annual savings of approximately \$12.7 million for the community. The work required will create approximately 104 full-time, annual jobs.<sup>6</sup>

The sets of measures presented will reduce Blythe's greenhouse gas emissions by 25,660 tonnes, 231 tonnes over the target amount of 25,429 tonnes. The surplus in programmatic activity allows future Councils discretion in program selection and implementation.

### **Acknowledgements**

The City of Blythe appreciates Southern California Edison's support and guidance on tapping win-win energy efficiency strategies to save money and protect the environment. Through the Green for Life program administered by the Coachella Valley Association of Governments, Blythe has been given tools and resources to prepare for action.

Southern California Edison has supported the research and development of energy efficiency measures within this Plan. The City of Blythe views climate action in a broad context that integrates energy efficiency with waste diversion, water use, and transportation...squarely addressing each of the Greenhouse Gas Inventory sectors.

Given the integrated planning context desired and the SCE Strategic Plan funding requirements, the Coachella Valley Association of Governments has arranged for supplemental funds from Riverside County for the research and development of the balance of the Plan's non-energy elements. The City is grateful for this special support to make the Plan most useful in implementation.

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<sup>6</sup> Jobs are conservatively estimated based on an annual full-time equivalent job created for every \$100,000 of first-year energy savings.

## II. Climate Action Planning

This City of Blythe 2013 Climate Action Plan (CAP) is a roadmap for action. It takes knowledge gained from the GHG Inventory and the community, sets emissions reduction goals, and applies policies, programs, and initiatives to reach them. Sets of measures detailed later in the Plan will save energy and money, while creating jobs and cutting carbon.

The City will use the Climate Action Plan as a guide to achieving the largest and most cost-effective emissions reductions. The City will also align the measures with other City goals, for instance working collaboratively on economic development and public safety issues.

### Purpose and Compliance

In 2006 California passed the Global Warming Solutions Act (Assembly Bill 32), which gave a new impetus to measuring and reducing energy use and emissions. The goal California set with AB 32 is to reduce emissions to 1990 levels by the year 2020. Governor Arnold Schwarzenegger's Executive Order S-3-05 set an even more aggressive goal—80% below 1990 levels by 2050—and identified local governments as key partners in reaching these goals.

Thanks to aggressive statewide programs, California's emissions have remained relatively stable over the past 15 years. According to the Energy Information Administration of the U.S. Department of Energy, only Vermont, New York, Idaho, and Rhode Island have smaller per capita footprints than California.

The California Air Resources Board (CARB) has been instructed to implement AB 32. Its Climate Change Scoping Plan was approved in 2008 and readopted in 2011 and outlines the state's plan to achieve GHG reductions required in AB 32.<sup>7</sup> In the Scoping Plan, CARB encourages local governments to adopt a reduction goal for municipal operations emissions and move towards establishing similar goals for community wide emissions that parallel the state's commitment to reduce GHGs.

While no directives have been issued on AB 32 implementation for local governments at this time, activity in the realm of emissions measuring and reduction is ramping up:

- On January 1, 2012, California's Cap-and-Trade regulation became effective. Part of the state's plan to meet AB 32 targets, this plan assigns 85% of all major emitters a "cap" on emissions, and forces them to either reduce emissions to meet the cap or to buy (or "trade" for) offsets to meet their target.
- On June 4, 2012, separate emissions reductions targets (8% below 2005 levels) for the Southern California region (which includes Blythe) were approved as part of Senate Bill 375 legislation. SB 375, originally passed in 2008, seeks to limit emissions through

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<sup>7</sup> "Climate Change Scoping Plan: A Framework for Change," California Air Resources Board, Pursuant to AB 32: The California Global Warming Solutions Act, December 2008.

transportation and land use planning. The California Air Resources Board and the South Coast Air Quality Management District have taken the lead on implementing action to meet SB 375 goals. The Southern California Association of Governments has prepared a Sustainable Communities Strategy consistent with SB 375 for the region including CVAG's area. A major focus of SB 375 is reducing Vehicle Miles Traveled (VMT) through land use decisions.

- The California Attorney General continues to monitor and actively challenge GHG inventories or other aspects of environmental impact plans that are not deemed adequate. A recent case occurred in January, 2012, when the adequacy of the Environmental Impact Report certified by the San Diego Association of Governments, for its 2050 Regional Transportation Plan, was challenged.

In an effort to stay ahead of impending regulations, this Climate Action Plan defines the City of Blythe's goal of complying, at a minimum, with statewide mandates to reduce emissions. California Environmental Quality Act (CEQA) compliance will be completed by CVAG with assistance of Blythe staff as part of the consideration of this Climate Action Plan.

At the same time, through thoughtful and well-considered planned actions, Blythe intends to:

- Increase energy efficiency in local government operations and in community activities
- Create new jobs associated with smart energy management
- Save money now being spent for energy and keep it in the City
- Maintain or increase the comfortable desert lifestyle of residents and visitors alike
- Bring CVAG jurisdictions together for effective regional climate planning

## **External Factors**

Factors outside of the City's control will influence emissions, often to its benefit. For example, electricity production is getting cleaner, thanks to the state's Renewable Portfolio Standard (RPS), requiring that utility energy portfolios include ever higher percentages of "renewable energy."<sup>8</sup> The state also regulates the efficiency levels of new building, with ever-more-stringent standards incorporated into each three-year cycle of building standards -- Title 24 -- updates.

In 2008, the California Public Utilities Commission adopted California's first "Long Term Energy Efficiency Strategic Plan" through 2020. It offers strategies to achieve greater levels of efficiency across all electric and natural gas use, including working toward goals for all new construction. The goal for all new residential construction is to be zero net energy by 2020, and for all new commercial construction to follow by 2030.

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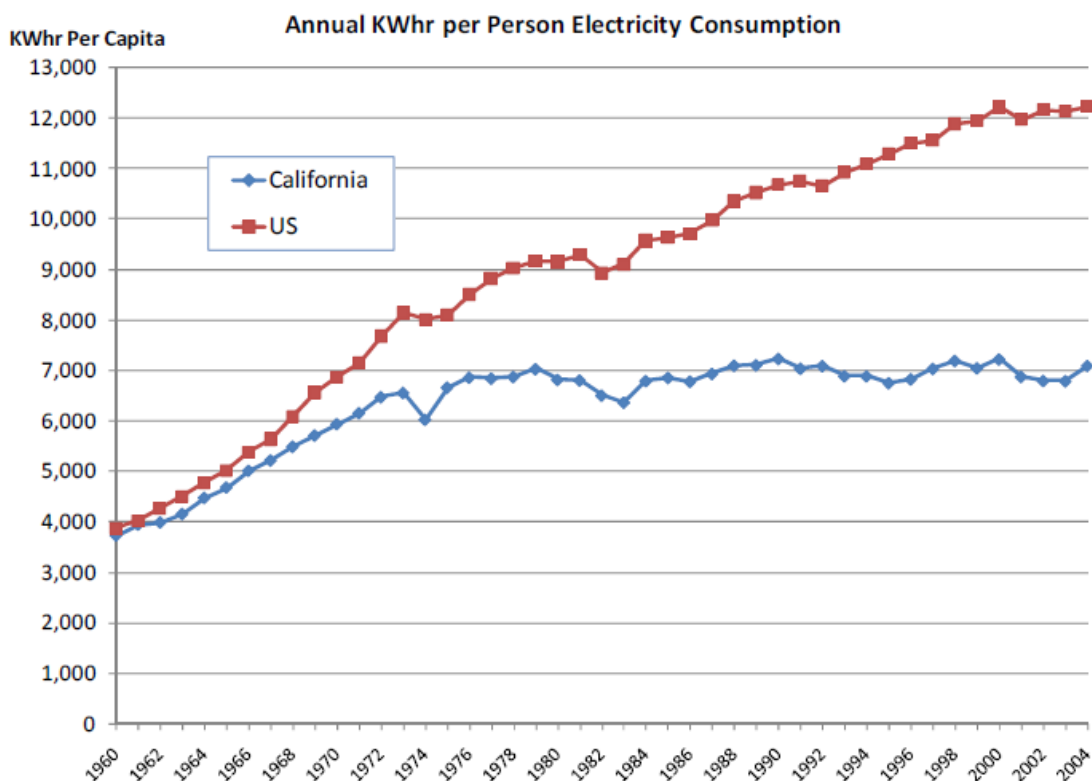
<sup>8</sup> The Renewable Portfolio Standard (RPS) defines the percentage of renewables that California's investor-owned utilities have to achieve by specific dates. Utilities achieved a 20% RPS by 2010 and are now directed to reach 33% with eligible renewable generation resources by 2020.

California's Low-Carbon Fuel Standard requires that the mix of fuel sold in the California market meets declining targets for greenhouse gas emissions—a reduction of at least 10 percent in carbon intensity by 2020. These factors mean that business as usual will be less carbon-intensive. The factors are emissions benefits to local jurisdictions, while imposing no direct costs.

### California Leadership in Energy Efficiency

California is the nation's leader for energy efficiency and conservation. Its impressive track record began in 1974 with the formation of the California Energy Commission (CEC). Since then, and as depicted in the following Figure 2 CEC graphic,<sup>9</sup> although population has increased, per capita energy use in California has stayed relatively stable, while energy use per person in the United States has increased 50%. California's efforts have had a profoundly positive effect in terms of driving down GHG emissions and have saved Californians billions of dollars in energy costs.

**Figure 2: U.S. vs. California Electricity Consumption**



Concerns about GHG concentrations increasing to intolerable levels have been growing for decades. By the turn of the century, the Intergovernmental Panel on Climate Change (IPCC) of the United Nations had forged a broad consensus that man's activity on earth ("anthropogenic" activity) is having an effect, and that climate patterns will change, and sea levels will rise.

<sup>9</sup> Integrated Energy Policy Report, Figure 2, California Energy Commission, 2007.

### California's Emissions 2009

California emitted 452.97 million tonnes of GHG emissions in 2009, approximately 12.2 tonnes per capita.<sup>10</sup> Of this, the largest emitters were transportation (172 million tonnes), electric power (104), residential and commercial fuel use (43), industry (81), agriculture—livestock, fertilizers, and general fuel use (32), and waste streams and landfills (7.3). Emissions were 5.8% lower in 2009 than 2008. Based on 2009 data, the state is 25 million tonnes from its 427 million tonne 1990 footprint goal.

### Utility Leadership

As a member of the Coachella Valley Association of Governments, Blythe has benefitted from the support of local utilities. Southern California Edison and Southern California Gas Company provide programs and services that have helped Blythe residents and businesses save resources and money. The savings values of these programs can be found throughout the GHG Inventory and this CAP as energy efficiency is the most cost-effective means to achieving climate protection targets.

### The Planning Process



This CAP fits within an umbrella of sustainability promoted by the Green for Life program. The program includes a number of tools to help local governments become more efficient, create savings, promote economic development and jobs, and stem the flow of dollars out of the communities and the region. The process is necessarily integrated and complex, involving all forms of energy, water, and materials from the life cycle of source to disposal. The CAP addresses the GHG impact of our lives in seven spheres of activity related to our daily lives.

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<sup>10</sup> State of California Greenhouse Gas Emissions Inventory, California Air Resources Board, April 2012. This edition of the inventory covers the years 2000 – 2009.

### The spheres address:

1.  Where We Live (Residential Sector)
2.  Where We Work (Business sector)
3.  How We Build (Building sector)
4.  How We Get Around (Transportation)
5.  How We Govern (Municipal sector)
6.  Where We Visit and Play (Hospitality/recreation)
7.  How We Teach and Learn (Education sector)

For each sphere, the Plan presents a number of policies, programs, and initiatives that can be implemented by Blythe to meet its goals. The initiatives are also color-coded, and linked with the Greenhouse Gas Inventory to track progress by sector, also known as “focus areas,” as presented in the legend:

Commercial Buildings
Cross-Cutting Initiatives
Government Initiatives
Renewable Energy
Residential Buildings
Solid Waste
Special Focus Area
Transportation
Water/Wastewater

Each recommendation carries information about how the measure will impact the community, and its approximate cost.

The Plan also indicates measures scheduled for immediate implementation, and those for implementation in years to come. Phase I measures are considered short-term and will be implemented within the next two years, 2013–2014. Phase II measures follow in 2015–2017. Phase III covers the 2018–2020 timeframe.

## Calculating Potential Savings

Estimating the savings results of different energy actions or savings programs is an imprecise but instructive exercise. The measures recommended in this report were approached with these questions in mind:

- Has the measure been successfully implemented elsewhere?

Directed research uncovers details on hundreds of programs that have been sponsored by utilities around the country and around the world. Closer to home, years of experience with both the design and the implementation of programs for Southern California Edison and Southern California Gas provides a strong basis for predicting the likely uptake of a given program in the Palo Verde Valley. Both external and internal resources were used in predicting costs and results of the measures included in the CAP.

- What special tools for measuring program results are available from the utilities?

The Statewide Energy Efficiency Collaborative (SEEC) provides support to cities and counties to help reduce greenhouse gas emissions and save energy. The partnership, consisting of non-profits and California's four investor-owned utilities, provides tools at no cost to users. SEEC's Community GHG Forecast Assistant is a spreadsheet designed to perform business-as-usual forecasts, including the effects of statewide and federally implemented programs such as fuel economy standards and the Renewable Portfolio Standard. Blythe's 2010 greenhouse gas emissions were entered into the spreadsheet, then; using growth rates projected by Riverside County Center for Demographic Research, business-as-usual emissions were estimated—with and without the impacts of federal and state programs.

- How does Local Governments for Sustainability (ICLEI) help quantify these reduction measures?

While the SEEC's tool helps forecast emissions (which in turn help set reduction goals), ICLEI's Climate and Air Pollution Planning Assistant (CAPPA) helps local governments identify and quantify potential energy- and carbon reduction measures. CAPPA provides more than 100 strategies for reducing emission and energy. Each strategy estimates emissions savings through a set of assumptions that can be easily adjusted by the user. In Blythe's case, assumptions were adjusted to reflect the unique climate and electricity mix of the City.

- How can the results of “community outreach programs” be measured?

Many utility savings programs have been measured for their effectiveness, both from the point of view of the utility and of the consumer. The results of any given program must consider, among other things, if an incentive is offered, how many people would have made the change anyway (“free ridership”), and the utility's built-in bias about energy savings. (Less energy used means less revenue to the utility.) Uptake in the recommended programs

and measures for this CAP was estimated based on experience and calculations; actual savings will be tracked.



### III. 2013 Greenhouse Gas Inventory Results

Blythe has completed the first formal step on the path to sustainability by developing the City of Blythe 2013 GHG Inventory with a 2010 baseline year. This inventory provides a detailed and clear analysis of the City's "carbon footprint," showing the sources and sectors of emissions, highlighting opportunities for emissions reductions that make sense for Blythe.

Blythe's inventory is complemented by the "Briefing on Climate Action Planning for Elected Officials in the CVAG Region" prepared by EcoMotion for CVAG and its member cities and tribes.<sup>11</sup> It compiles the results of fourteen greenhouse gas inventories prepared thus far in the Coachella and Palo Verde valleys, determining gross and net emissions and opportunities for regional climate protection.

Highlights of the 2013 City of Blythe GHG Inventory:

- In 2010, total emissions within Blythe's jurisdictional boundary were 74,126 tonnes.
- Of the total, 19,141 tonnes were emitted from the Chuckawalla Valley State Prison and Ironwood State Prison.
- The combined prison contribution to the City's emissions footprint is 25.8% of the total.
- To meet AB 32 targets by 2020 the City needs to reduce its annual emissions community-wide by 25,429 tonnes.
- In 2010, the largest percentage of emissions—38%—came from the electricity used to power the City's homes, businesses, and industry.
- At 3.6 tonnes CO<sub>2</sub>e per capita, Blythe has low emissions relative to neighboring cities.

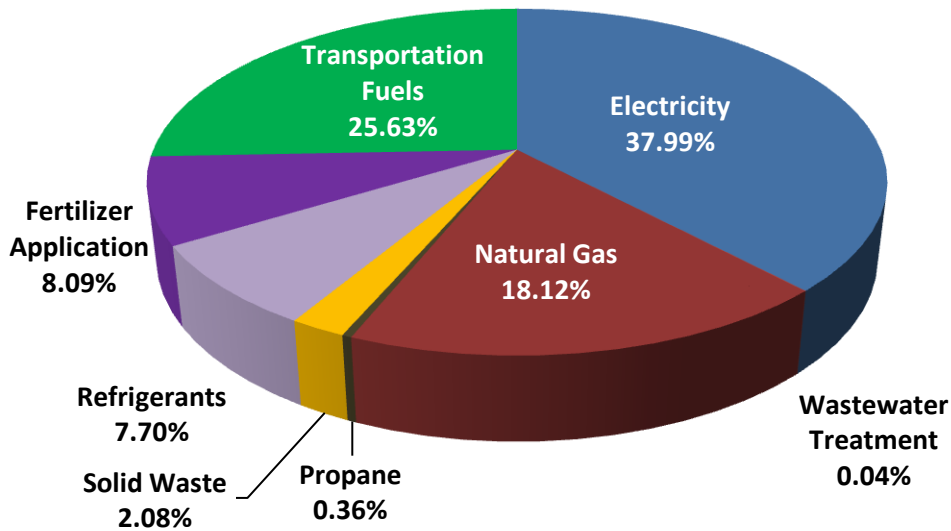
The community's total emissions came from a number of sources, as shown in

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<sup>11</sup> Briefing on Climate Action Planning for Elected Officials in the CVAG Region, Prepared by EcoMotion for the Coachella Valley Association of Governments, May 2013.

Figure 3:

**Figure 3: Blythe 2010 Community Emissions with Prisons, by Source (Tonnes CO<sub>2</sub>e)**



## Emissions Reductions Goals

**Figure 4: Blythe's Emissions Forecasted to 2020**

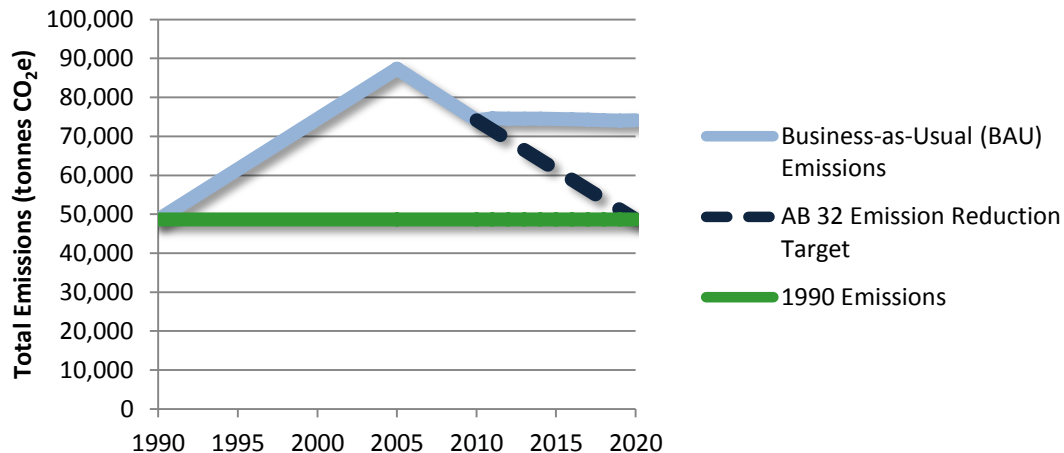


Figure 4 summarizes the position of Blythe based on available data from 1990, 2005, and 2010. The light blue line shows the trajectory the City will follow given projected population growth,<sup>12</sup> and net emissions of current and planned state and federal emission reduction programs. The darker green line shows the 1990 emission levels based on 2010 back-casted estimates. The dashed line represents the path Blythe must follow to achieve 1990 emissions reduction goals. City staff will track population growth annually and adjust the implementation of measures accordingly.

<sup>12</sup> Riverside County Population Projections 2010, Center for Demographic Research, Riverside County Transportation and Land-Use Management Agency.

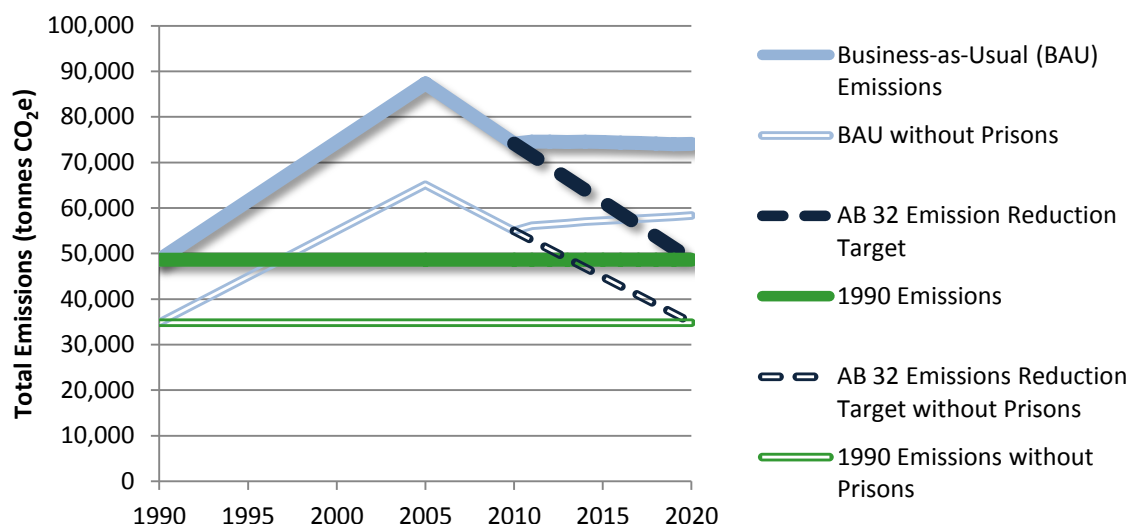
**Table 2: City of Blythe 1990, 2010, and 2020 Projected Emissions**

Scenario	Total Emissions (Tonnes CO <sub>2</sub> e)	Tonnes over 1990	% Reduction Needed
1990 Emissions Level	48,632	-	-
2010 Baseline	74,126	25,493	34.4%
2020 Business-as-Usual	74,061	25,429	34.3%

Figure 5 below depicts Blythe's emissions in two settings—with and without the prisons. The solid lines represent Business-as-Usual emissions, 1990 emissions level, and the target path for the City of Blythe as shown above. The dashed line again represents the path Blythe must follow to achieve 1990 emissions reduction goals.

The semi-transparent lines in Figure 5 represent the corresponding emissions levels for the City excluding the prisons. The graph suggests that all emissions levels would be shifted downwards when excluding the prisons, but as Table 3 demonstrates, the overall emissions reductions necessary to meet 1990 level emissions would only be reduced by 1,867 tonnes.

**Figure 5: Blythe Emissions Projections with and without Prisons**



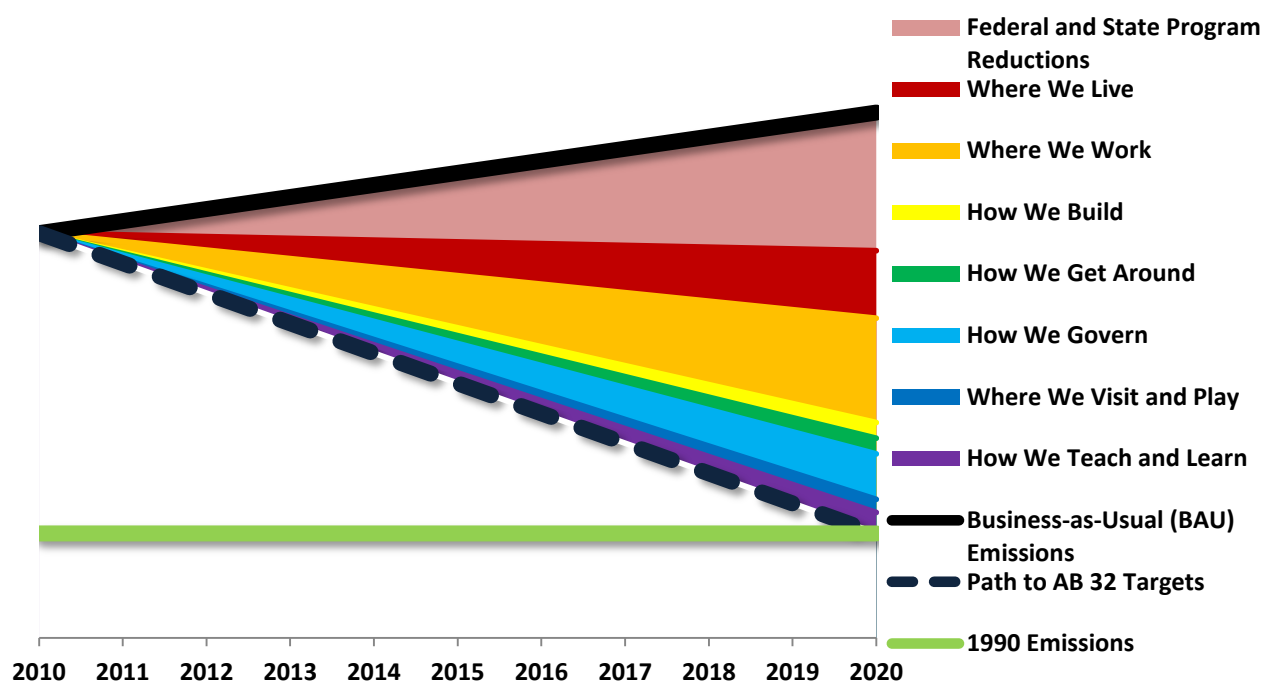
**Table 3: Blythe's Projected Emissions with and without Prisons**

Scenario	Total Emissions with Prisons (Tonnes CO <sub>2</sub> e)	Total Emissions without Prisons (Tonnes CO <sub>2</sub> e)
1990 Emissions Level	48,632	34,796
2010 Baseline	74,126	54,985
2020 Business-as-Usual	74,061	58,358
Reduction from 1990	25,429	23,562
Difference of Reductions	1,867 tonnes CO <sub>2</sub> e	

## Portfolio of Savings Measures

Informed by the Greenhouse Gas Inventory, and with goals set, the Plan presents Savings measures in each of the seven spheres. The “wedges” graphic, Figure 6, presents a simple depiction of how policies, programs, and initiatives in each sphere will result in the required aggregate emissions reduction. In the absence of federal and state programs, the emissions would be much greater. The impact of federal and state programs will reduce emissions from current levels, but not enough to reach the 1990 levels.

**Figure 6: Emissions Reduction Wedges**



## IV. Greenhouse Gas Reduction Opportunities

Hundreds of opportunities for GHG reductions have been examined by the City of Blythe and its Green for Life consultants. They cover seven spheres of daily activity, and numerous types of initiatives within each sphere, from charging users for ball-field lighting, to advancing pumping efficiency in all water and wastewater operations. A portfolio of 74 measures is presented that represents 25,660 tonnes of annual CO<sub>2</sub>e savings, 231 tonnes over the required 25,429 tonnes to meet the City's emissions reduction goals.

The GHG emissions reductions measures shown in this Plan have been selected from suggestions and recommendations from interviews with City staff, from the public, and from best practices gleaned from around the country.

### Summary of Measures by Sphere

Sphere	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
Live	4,886	20	\$1,970,011	\$43,000
Work	2,016	9	\$870,645	\$34,500
Build	916	5	\$452,137	\$155,500
Mobility	3,620	15	\$1,519,196	\$195,800
Govern	11,536	46	\$4,619,013	\$493,410
Recreate	1,343	5	\$460,529	\$24,000
Learn	1,343	5	\$524,439	\$40,000
Totals:	25,660	104	\$10,415,969	\$986,210

Each measure in the Plan has been chosen based on its suitability to the local climate, cost to the City, its efficacy within the community, and “do-ability” in the current economic climate. Measures are color-coded and link to focus areas within the City's Greenhouse Gas Inventory.

Assumptions for savings, uptake, and costs were developed as follows:

- Savings figures in tonnes CO<sub>2</sub>e were calculated using ICLEI GHG and CAP inventory planning tools (the CACP calculator<sup>13</sup> and the CAPPA<sup>14</sup> tool). Data from other communities' experience with similar programs was used to inform uptake parameters.
- Many assumptions were formulated based on the local government's 2010 population and number of residential units. In Blythe, the population figure used was 20,817 and the household units figure was 6,108.<sup>15</sup>

<sup>13</sup> CACP – Clean Air and Climate Protection software, by Local Governments for Sustainability USA (ICLEI), is a greenhouse gas accounting package specifically designed to support climate action planning.

<sup>14</sup> CAPPA -- Climate and Air Pollution Planning Assistant, an ICLEI decision support tool designed to help U.S. local governments explore, identify, and analyze potential climate and air pollution emissions reduction opportunities.

<sup>15</sup> U.S. Census 2010, includes prison population

- Costs were assumed to be those borne by the City. In many cases, costs for measures involve the estimated level of effort for an appropriate staff person. Given demands on staff already, many services will need to be subcontracted at the approximate costs presented. If the City uses staff time, absolute program costs will be lower.

#### **Notes on Tables:**

For each sphere of activity, a table summarizes suitable emissions mitigation measures. Later in the text, tables list measures for each phase of activity. Comprehensive tables ranked by the cost-effectiveness of all measures (with detailed assumptions), and that rank initiatives' cost to the city (as well as kWh savings) can be found in the Appendix.



### **Where We Live (Residential Sector)**

- Household energy conservation and efficiency
- Household water conservation and efficiency
- Waste management and recycling
- Renewable energy systems
- Community education

Blythe has a track record of promoting residential programs, from recycling to installation of electricity savings measures. Since homes account for a large percentage of electricity use in the community, there is still considerable opportunity for efficiency gains and GHG reductions.

Blythe can promote simple steps for homeowners—encouraging them to replace light bulbs, to exchange old, inefficient appliances for new Energy Star varieties, and to undertake sustainable and energy efficient remodeling projects. Green for Life's Voluntary Green Building Program offers valuable remodeling suggestions, including water conservation programs. A decrease in water usage is associated with electricity costs embedded in water pumping and delivery.

The City can support more sophisticated steps including insulation and major heating, ventilation and air conditioning (HVAC) upgrades that make financial sense for local government, businesses and for residents. Air conditioning is the biggest electricity use in homes and businesses in the City. Blythe will continue to promote retrofits that pay back quickly as well as support regional Property Assessed Clean Energy (PACE) financing. Through PACE, financing is provided for energy upgrades and repaid via a property tax assessment. CVAG is leading the regional PACE initiative with participation by its member jurisdictions; it is anticipated that such a program will be operable by late 2013.

Household appliances and systems have dramatically advanced. New systems use less natural gas and electricity while providing superior comfort and more control. Blythe will reinforce these messages, that residents and business can indeed embrace energy efficiency to save energy and money while reducing emissions.

Note that all recommended items are presented in terms of least cost to the City, and efficacy in terms of dollars per tonne avoided, with assumptions presented in the Appendices.

**Table 4: Savings Measures for “Where We Live”**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LIVE - 1	Government Initiatives	<u>Plan Checking and Permitting</u> : Expedite plan check process for energy-efficiency measures and remodels and renewable energy installations to reduce carbon emissions	II	207	1.4	\$141,909	\$1,000
LIVE - 2	Government Initiatives	<u>Water Conservation Ordinance</u> : Build on and exceed current water conservation activities in the residential sector by 15% community-wide by 2020	I	32	0.5	\$52,438	\$1,000
LIVE - 3	Government Initiatives	<u>Gray water-Ready Ordinance</u> : Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	III	3	0.0	\$26	\$5,000
LIVE - 4	Government Initiatives	<u>Landscaper Certification</u> : Require 100% of licensed landscapers to be certified by CVAG, including annual training	II	39	0.5	\$48,900	\$5,000
LIVE - 5	Renewable Energy	<u>Solar "Champion"</u> : Promote solar photovoltaic systems and solar thermal systems for residential homeowners to develop 200 "Solar Champion" systems	II	1,516	4.4	\$435,332	\$4,000
LIVE - 6	Residential Buildings	<u>Pool Pumps</u> : Promote SCE program offering rebates on high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 100 units	III	49	0.4	\$35,438	\$5,000
LIVE - 7	Residential Buildings	<u>Energy-Efficient Lighting</u> : Seek grant funding through the DCEP to distribute 2,000 compact fluorescent and LED lamps for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	II	279	2.0	\$200,376	\$3,000
LIVE - 8	Residential Buildings	<u>Peak Demand Reduction</u> : Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 30% of the housing stock	I	212	1.5	\$152,179	\$2,000
LIVE - 9	Residential Buildings	<u>Household Efficiency Audits</u> : Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	I	185	1.0	\$104,031	\$2,500
LIVE - 10	Residential Buildings	<u>Residential PACE</u> : Partner and aggressively promote Residential PACE Program to reach 10% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	977	5.8	\$577,235	\$2,500
LIVE - 11	Residential Buildings	<u>On-Bill Finance/Repayment</u> : Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	II	287	0.7	\$72,147	\$2,000
LIVE - 12	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 77% by 2015	I	393	0.5	\$50,000	\$5,000



Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LIVE - 13	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 87% by 2020	III	707	1.0	\$100,000	\$5,000

Government Initiatives	4	281	2	\$243,273	\$12,000
Renewable Energy	1	1,516	4	\$435,332	\$4,000
Residential Buildings	6	1,989	11	\$1,141,406	\$17,000
Solid Waste	2	1,100	2	\$150,000	\$10,000
Subtotal	13	4,886	20	\$1,970,011	\$43,000



### Where We Work (Commercial Sector)

- Workplace energy conservation and efficiency
- Workplace water conservation and efficiency
- Materials management and recycling
- Transportation and telecommuting

The City of Blythe is committed to creating healthy office and work environments as an important part of a sustainable lifestyle in the community. Given the percent of time that many residents spend at work, the focus on “Where We Work” will have multiple benefits.

For Blythe, continual business improvement is essential in creating jobs and supporting ongoing economic development. Programs that reduce the stress of commuting, for example, add to employee satisfaction, improve productivity, and cut transportation emissions. Studies show that green building upgrades can cut operating costs, lead to decreased illnesses and absenteeism and longer-term tenants and, again, to increased productivity.

The City can have an impact on the way supplies and raw materials are delivered, and on how excess or waste materials are disposed of.

**Table 5: Savings Measures for “Where We Work”**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 1	Commercial Buildings	<u>Commercial Energy Audits</u> : Work with DCEP to promote energy audits for 250,000 square feet of commercial buildings and confirm replacement/upgrade schedules	II	183	0.6	\$63,664	\$2,000
WORK - 2	Commercial Buildings	<u>Peak Demand Reduction</u> : Collaborate with SCE and encourage 50 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	96	0.5	\$48,450	\$1,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 3	Commercial Buildings	<u>Energy-Efficient, Commercial-Sector Lighting:</u> Promote and leverage existing SCE incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	II	176	0.6	\$64,732	\$2,500
WORK - 4	Commercial Buildings	<u>SCE Business Incentives:</u> Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	0.5	\$49,140	\$2,000
WORK - 5	Commercial Buildings	<u>Integrated Lighting Systems:</u> Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 200,000 square feet of commercial space	II	164	1.0	\$99,256	\$12,000
WORK - 6	Commercial Buildings	"The Temperature Club:" Promote community partnership through policies to adjust indoor temperatures to save/degree	I	97	0.5	\$48,450	\$2,000
WORK - 7	Commercial Buildings	<u>Commercial PACE Program:</u> Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	III	613	2.6	\$260,251	\$5,000
WORK - 8	Commercial Buildings	<u>Commercial On-Bill Financing/Repayment:</u> Encourage On-Bill Financing/Repayment through SCE, Southern California Gas with green messaging and teamwork in the community	I	180	0.8	\$76,028	\$2,000
WORK - 9	Solid Waste	<u>Food Waste Composting at Restaurants:</u> Coordinate with waste hauler to support and promote restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	19	0.2	\$20,817	\$2,000
WORK - 10	Transportation	<u>Employee Shuttles, Van Pools, and Car Pools:</u> Support and expand on existing programs (Palo Verde Transit, Van Pools to prisons) to target employer and employee participation with a goal of 200 additional participants. In addition to savings...grants can be accessed and funds created to provide the security of a "guaranteed-ride home"	I	229	0.9	\$85,278	\$2,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 11	Transportation	Telecommuting: Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Blythe	I	147	0.5	\$54,579	\$2,000

Commercial Buildings	8	1,621	7	\$709,971	\$28,500
Solid Waste	1	19	0	\$20,817	\$2,000
Transportation	2	376	1	\$139,857	\$4,000
Subtotal	11	2,016	9	\$870,645	\$34,500



## How We Build (Building Sector)

- Green building materials
- Codes and standards
- Land use policy
- Lighting, HVAC systems, etc.
- Renewable energy system integration

Given extreme desert conditions, “How We Build” is of great importance to Blythe and this Climate Action Plan.

While California has the nation’s leading building standards (thanks to Title 24) there are still ways for Blythe to make buildings healthier and more sustainable. The Green for Life Voluntary Green Building Program serves as a catalyst in the process of creating win-win-win solutions between costs, health, and security. It prepares builders and buyers for the benefits of green and highly efficient building.

Starting in 2010, new development in Blythe slowed, and it continues to remain below historical levels. Riverside County projects 14% growth over the next 10 years. (This assumes no growth of the prison population.) The City has the opportunity now to set new neighborhood development requirements and higher standards for buildings as part of the Green for Life Voluntary Green Building program, in preparation for new statewide standards scheduled to take effect on January 1, 2014.

The biggest opportunities for building energy efficiency lie with existing buildings. As with residential buildings, commercial and city buildings can benefit from efficiency upgrades and better energy management. They may also be able to contribute renewable sources of electricity by way of solar or wind installations, thereby reducing emissions from carbon-based sources.

The City will continue to collaborate with local utilities and county or state programs to help offset the costs of building upgrades. It will continue to promote on-bill financing and repayment. It will also support the development of a regional PACE program for retrofits.

**Table 6: Savings Measures for “How We Build”**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
BUILD - 1	Commercial Buildings	<u>Sustainable Parking Lots</u> : Program to reduce the heat island effect through the promotion of parking lot coverings and coatings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	45	0.2	\$23,366	\$1,000
BUILD - 2	Commercial Buildings	<u>"Cool Roofs"</u> : Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	II	15	0.1	\$8,714	\$15,000
BUILD - 3	Commercial Buildings	<u>New and Efficient Construction</u> : Promote the Savings by Design Program from SCE	I	93	0.5	\$47,215	\$1,000
BUILD - 4	Government Initiatives	<u>Green Building Program</u> : Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.3	\$134,697	\$2,500
BUILD - 5	Government Initiatives	<u>Green Building Support Services</u> : Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	III	274	1.3	\$134,697	\$50,000
BUILD - 6	Government Initiatives	<u>Plan Checks and Permitting</u> : Expedite plan checks for green building projects and major green remodels	I	47	0.0	\$0	\$1,000
BUILD - 7	Residential Buildings	<u>Shade Trees</u> : Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	\$12,240	\$56,000
BUILD - 8	Residential Buildings	<u>Affordable Housing</u> : Promote the construction of energy-efficient affordable housing with private-sector partners	II	94	0.4	\$43,993	\$25,000
BUILD - 9	Residential Buildings	<u>Green Home Tours</u> : Encourage Chamber of Commerce to administer “Green Homes Tours” annually to showcase six projects each year	II	39	0.5	\$47,215	\$4,000

<b>Commercial Buildings</b>	<b>3</b>	<b>153</b>	<b>1</b>	<b>\$79,295</b>	<b>\$17,000</b>
<b>Government Initiatives</b>	<b>3</b>	<b>595</b>	<b>3</b>	<b>\$269,394</b>	<b>\$53,500</b>
<b>Residential Buildings</b>	<b>3</b>	<b>168</b>	<b>1</b>	<b>\$103,448</b>	<b>\$85,000</b>
	<b>9</b>	<b>916</b>	<b>5</b>	<b>\$452,137</b>	<b>\$155,500</b>



## How We Get Around (Transportation)

- Alternative fuels (EVs, hybrids, etc.)
- Trip reduction, optimization
- Biking and walking
- Buses, shuttles, and transit oriented development
- Transportation infrastructure
- Efficient driving habits through training

In Blythe, emissions from transportation and “How We Get Around” represent the second largest source of emissions, behind electricity. “How We Get Around” shapes the community, and has a major footprint.

Transportation covers a wide swath of opportunity. It tackles fundamental issues such as the driving patterns associated with land use, the efficiency of vehicles, as well as the use of alternative fuels and alternative methods of getting around.

The City of Blythe has already benefitted from the conversion policies of the transit fleets operating within the City. Two new CNG buses have been added to the transit fleet. Now it will consider and take additional measures to create economic and environmental benefits.

**Table 7: Savings Measures for “How We Get Around”**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
MOBILITY - 1	Transportation	<u>Hybrid Vehicles</u> : Promote the purchase of hybrid vehicles in the community potentially with recognition and preferential parking for participants with a target of 300 hybrids by 2020	III	820	1.5	\$152,250	\$8,300
MOBILITY - 2	Transportation	<u>Alternative Fueling Stations</u> : Complete and promote 2 "in process" CNG fueling stations for municipal fleet and public use	I	129	0.5	\$50,000	\$5,000
MOBILITY - 3	Transportation	<u>Alternative Fueling Stations</u> : Foster public/private partnerships to promote the installation of 2 additional CNG fueling stations and 2 EV charging stations for CNG and EV fleets	III	133	1.0	\$100,000	\$12,000
MOBILITY - 4	Transportation	<u>Eco-Conscious Driving</u> : Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance. AKA "hyper-miling."	II	94	0.4	\$35,000	\$5,000
MOBILITY - 5	Transportation	<u>Bike, Walking, NEV</u> : Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	III	12	0.0	\$4,620	\$100,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
MOBILITY - 6	Transportation	<u>Buses</u> : Promote the benefits of buses to increase ridership by 500 riders by providing promotions and incentives for new riders such as vouchers	II	278	3.2	\$317,755	\$25,000
MOBILITY - 7	Transportation	<u>Buses and Shuttles</u> : Partner and collaborate with Palo Verde Transit, local employers (such as the prisons), the college and popular tourist destinations to increase ridership, improve rider efficiency and improve routing on local and regional transit routes.	II	111	1.3	\$127,099	\$2,500
MOBILITY - 8	Transportation	<u>Van Pools</u> : Partner and recognize all Blythe major employers with over 25 employees for van pools	II	281	1.0	\$104,468	\$5,000
MOBILITY - 9	Transportation	<u>Electric Vehicles</u> : Design and promote a Pilot Neighborhood Electric Vehicle program supporting and encouraging residents to lease and purchase electric vehicles in the community potentially with recognition and preferential parking for participants.	II	836	3.1	\$310,821	\$21,000
MOBILITY - 10	Transportation	<u>Car Sharing</u> : Support and promote a local committee to attract and initiate a subscriber-based pilot CarShare program in Blythe with city-providing only "home parking spots" with signage for publicly available vehicles with a goal to serve 5% of existing drivers who each reduce their driving by 25%	II	579	2.2	\$215,356	\$5,000
MOBILITY - 11	Transportation	<u>Senior Vehicle Tune-Ups</u> : Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	118	0.1	\$5,827	\$5,000
MOBILITY - 12	Transportation	<u>Anti-Idling</u> : Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles in specific zones. In accordance with CARB rules regarding idling of commercial vehicles	II	229	1.0	\$96,000	\$2,000

<b>Transportation</b>	<b>12</b>	<b>3,620</b>	<b>15</b>	<b>\$1,519,196</b>	<b>\$195,800</b>
<b>Subtotal</b>	<b>12</b>	<b>3,620</b>	<b>15</b>	<b>\$1,519,196</b>	<b>\$195,800</b>



## How We Govern (Municipal Sector)

- Energy management
- Policies, codes, and ordinances
- Economic development
- Regional collaboration

The City of Blythe's operations are responsible for 3.4% of total community emissions. Even with this small proportion, the City recognizes its disproportionately important role as a leader within the community.

Cities can control the programs and policies they set for their own employees. City facilities can be used as test beds for new technologies and pilot programs. Through leadership, Blythe intends to continue to set an example for the community and the region.

The following policies are measures that are directly under the City's control to engage savings and to reduce emissions. For instance, the City can implement a "Solar Ready" ordinance that would require all new construction to be prepared for solar, including pre-wiring while roof joists and walls are exposed.

#### **List of Potential Ordinances to Affect Sustainability**

- ✓ Expedite plan checking for green and efficient new construction/major remodels
  - Residential, Commercial
- ✓ Waive permit fees for green and energy-efficient new construction/major remodels
  - Residential, Commercial
- ✓ Pass more restrictive water conservation ordinance
  - Residential, Commercial
- ✓ Mandate landscaper certification
- ✓ Food waste composting ordinance for restaurants
- ✓ Green Building Program
  - Voluntary
  - Mandatory
- ✓ Anti-Idling ordinance for commercial vehicles
- ✓ "Golf Cars" ordinance to promote use for local transit
- ✓ Mandate that all municipal buildings are LEED Silver or better
- ✓ Solar Ready ordinance for new construction
  - Residential, Commercial
- ✓ Roof-mounted wind systems on private properties
  - Residential, Commercial

In conjunction with this Climate Action Plan, an Energy Action Plan for the City of Blythe has been developed. The Energy Action Plan presents steps for the City to reduce energy use and costs in government operations.

City leadership can be seen in many areas, from land-use policies that encourage or even dictate transportation requirements, to purchasing and maintenance policies, to regional collaborations and financing programs. Through outreach and education, the City can involve the community and recognize the accomplishments of individuals, neighborhoods and groups.

**Table 8: Savings Measures for “How We Govern”**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
GOVERN - 1	Cross-Cutting Initiatives	<u>Energy Management Position</u> : Designate a staff member to continue working on Environmental Management and Sustainability projects to promote energy efficiency and carbon savings	II	741	1.0	\$100,000	\$15,000
GOVERN - 2	Government Initiatives	<u>Desert Cities Energy Partnership</u> : Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	380	1.7	\$166,291	\$2,000
GOVERN - 3	Government Initiatives	<u>Municipal Facility Efficiency Upgrades...Payback Threshold Policy</u> : Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	347	1.5	\$151,745	\$41,900
GOVERN - 4	Government Initiatives	<u>Municipal Facility Efficiency Upgrades</u> : Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	51	0.2	\$22,490	\$329,510
GOVERN - 5	Government Initiatives	<u>Utility Manager Software</u> : Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	75	0.3	\$32,582	\$5,000
GOVERN - 6	Government Initiatives	<u>Benchmarking</u> : Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	5	0.0	\$1,982	\$5,000
GOVERN - 7	Government Initiatives	<u>Retro Commissioning</u> : Abide by the Commissioning/Retro-commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	5	0.0	\$1,982	\$1,000
GOVERN - 8	Government Initiatives	<u>Group Purchasing</u> : Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	5	0.2	\$20,000	\$2,000
GOVERN - 9	Renewable Energy	<u>Solar Public/Private Partnerships</u> : Explore private-public partnerships for renewable energy installations on public land (performance-based contracts and power purchase agreements).	III	6,192	22.8	\$2,276,505	\$8,000
GOVERN - 10	Renewable Energy	<u>Roof-Mounted Wind Systems</u> : Support, promote, and enable the installation of 2,000 roof-mounted wind turbines on private property by 2020	I	2,917	15.7	\$1,573,200	\$50,000
GOVERN - 11	Renewable Energy	<u>Solar Ready Ordinance</u> : Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	\$217,666	\$5,000
GOVERN - 12	Transportation	<u>Electric Vehicle Charging Stations</u> : Seek grant funding and private sector partnerships to install 2 EV charging stations on public and private property	I	4	0.0	\$1,670	\$1,000
GOVERN - 13	Transportation	<u>Transit Oriented Development</u> : Promote transit oriented development to foster development in line with mass transit corridors	II	349	0.3	\$34,900	\$1,000



Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
GOVERN - 14	Water	<u>Waste Water Treatment Facility Pump Upgrades</u> : Continue collaboration with DCEP and SCE on auditing services and pump upgrade prioritization for Blythe's Waste Water Treatment Facility	I	86	0.2	\$18,000	\$27,000

Cross-Cutting Initiatives	1	741	1	\$100,000	\$15,000
Government Initiatives	7	868	4	\$397,072	\$386,410
Renewable Energy	3	9,488	41	\$4,067,371	\$63,000
Transportation	2	353	0	\$36,570	\$2,000
Water	1	86	0	\$18,000	\$27,000
Subtotal	14	11,536	46	\$4,619,013	\$493,410



### Where We Visit and Play (Hospitality/Recreation)

- Spa resorts, hotels, and restaurants
- Golf courses and parks
- Desert-appropriate landscaping
- Water efficiency
- Enhanced visitor transportation

The City of Blythe takes great pride in the City's quality of life. It's a great place to visit and a great place to live. Attractive desert landscaping exemplifies this, as do passive solar designs that keep buildings shaded and cool. This Plan presents win-win solutions, making buildings more comfortable, while more efficient; making neighborhoods more livable while reducing energy costs.

This Climate Action Plan highlights ways that Blythe can enhance the visitor experience and lifestyle while becoming more sustainable. Blythe thrives by attracting visitors and attending to the residents' needs. The City recognizes the value of its golf course, hotels, river-based activities and special events. These amenities will continue to be key elements in the sustainability program. The goal of this Plan is to promote efficiency, cut costs, and reduce emissions without impacting the visitor experience. A supporting objective will be to educate visitors to value a more sustainable desert experience.

**Table 9: Savings Measures for "Where We Visit and Play"**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
RECREATE - 1	Government Initiatives	<u>Ball field Lighting</u> : Explore permit fees for night time ball field usage	II	15	0.1	\$5,519	\$10,000
RECREATE - 2	Residential Buildings	<u>Comprehensive Pool Efficiency</u> : Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating	I	246	1.8	\$177,192	\$2,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
RECREATE - 3	Transportation	<u>Visitor Shuttles</u> : Collaborate with the Palo Verde Transit, the Chamber of Commerce, local hospitality and tourist attractions to seek grants, and other financial opportunities to promote visitor and special event shuttles between key locations	II	872	0.4	\$38,869	\$5,000
RECREATE - 4	Water	<u>Irrigation System Controls</u> : Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	\$127,140	\$1,000
RECREATE - 5	Water	<u>Drought-Tolerant Landscaping</u> : Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	27	0.1	\$9,934	\$1,000
RECREATE - 6	Water	<u>Golf Course Water Management Recognition</u> : Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	81	1.0	\$101,875	\$5,000

Government Initiatives	1	15	0	\$5,519	\$10,000
Residential Buildings	1	246	2	\$177,192	\$2,000
Transportation	1	872	0	\$38,869	\$5,000
Water	3	210	2	\$238,949	\$7,000
Subtotal	6	1,343	5	\$460,529	\$24,000



## How We Teach and Learn (Education Sector)

- Student education
- Community centers and youth programs
- Workforce development
- Demonstration projects and community outreach

Blythe recognizes that today's students are tomorrow's consumers. How the youth are educated has a major impact on the sustainability of Blythe, the region, state, and the planet.

Blythe recognizes its unique location at the center of solar and wind potential. The City will continue to support workforce development from a young age or through retraining the existing workforce. Blythe will support the continuum of education starting in elementary schools with California teaching standards, in Palo Verde High School, and continuing at local institutions of higher learning.

Training also takes place in homes and businesses throughout the community, as residents become aware of new opportunities and often, new incentives. The City understands its role in raising awareness and understanding of the benefits of sustainability.

While emissions reductions resulting from educational programs are inherently difficult to measure and laced with assumptions and scientific estimates, ingrained, community-wide efforts can be more substantial and longer-lived than any short-term outside incentive program. Blythe values education and will continue to educate its residents about ways to “go green” for its multiple benefits.

**Table 10: Savings Measures for “How We Teach and Learn”**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LEARN - 1	Commercial Buildings	<u>Commercial Sector Green Building</u> : Target and work with minimum of 50 businesses for Green Business Program	II	300	0.9	\$91,901	\$10,000
LEARN - 2	Cross-Cutting Initiatives	<u>Green Building Lectures and Continuing Education</u> : Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	I	110	0.6	\$55,840	\$5,000
LEARN - 3	Cross-Cutting Initiatives	<u>Community Energy Champions</u> : Solicit nominations and promote a Community Energy Champion each year to show value of efficiency and its energy, dollar, and carbon savings	II	15	0.2	\$21,630	\$2,000
LEARN - 4	Cross-Cutting Initiatives	<u>Internships</u> : Provide student internships in city government each year to focus on updates to the GHG inventory and the climate action plan and to promote energy efficiency in Blythe	II	2	0.0	\$0	\$5,000
LEARN - 5	Cross-Cutting Initiatives	<u>Workforce Development</u> : Promote workforce development in partnership with Palo Verde College, College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0	\$0	\$10,000
LEARN - 6	Residential Buildings	<u>Save a Ton Campaign</u> : Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	598	3.4	\$339,488	\$2,000
LEARN - 7	Special Focus Area	<u>Agricultural Equipment Fuel Conversion</u> : Seek special agricultural grant funding to offer pilot program for agricultural off-road and support equipment to shift fuel sources (CNG, Propane or Electric)	I	7	0.0	\$2,000	\$2,000
LEARN - 8	Special Focus Area	<u>Agricultural Fertilizer Reduction</u> : Identify strategies to promote low-emissions agricultural practices that strengthens Blythe's role as a regional agricultural leader with an initial pilot program focus on fertilization and crop rotation strategies	I	298	0.1	\$10,000	\$2,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LEARN - 9	Special Focus Area	<u>Agricultural Process Equipment Efficiency:</u> Leverage DCEP and other potential Palo Verde Valley partnerships to promote agricultural process emission reductions targeted at electricity and natural gas efficiency	III	11	0.0	\$3,580	\$2,000

Commercial Buildings	1	300	1	\$91,901	\$10,000
Cross-Cutting Initiatives	4	129	1	\$77,470	\$22,000
Residential Buildings	1	598	3	\$339,488	\$2,000
Special Focus Area	3	316	0	\$15,580	\$6,000
Subtotal	9	1,343	5	\$524,439	\$40,000

## V. Implementation

### Timeline

This 2013 Climate Action Plan presents a course of action for the next eight years. Naturally, some measures will shift in implementation priority.

- Phase I activities will be completed in calendar years 2013 and 2014.
- Phase II activities will be implemented in the years 2015, 2016, and 2017.
- Phase III activities will take place in 2018, 2019, and 2020.

Through a set of 30 Phase I activities, the City can reduce its footprint by 8,410 tonnes, 33% of the “gap” between projected emissions and 1990 levels, by leveraging a variety of resources and partnerships.

***The 74 measures and 3 phases represent a challenging, but plausible and cost-effective scenario for emissions reductions.***

The following table presents an eight-year implementation plan that creates large community benefits. For an estimated gross cost of \$986,210 over eight years, approximately \$124,000 per year, the City can achieve compliance with AB 32 mandates.

### Summary of Measures by Phase

Phase	# Measures	Emissions Reduced (Tonnes CO <sub>2</sub> e)	Estimated Cost to City	Community Savings
I	30	8,410	\$181,400	\$4,198,765
II	31	8,232	\$214,000	\$3,109,280
III	13	9,018	\$590,810	\$3,107,924
Totals:	74	25,660	\$986,210	\$10,415,969

The Summary of Measures by Greenhouse Gas Sector table below shows that the biggest emissions reductions will come from government initiatives and transportation, followed by residential buildings, renewable energy, and commercial buildings.

### Summary of Measures by Greenhouse Gas Sector

GHG Sector Linkage	# Measures	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
Commercial Buildings	12	2,074	9	\$881,167	\$55,500
Cross-Cutting Initiatives	5	870	2	\$177,470	\$37,000
Government Initiatives	15	1,759	9	\$915,258	\$461,910
Renewable Energy	4	11,004	45	\$4,502,703	\$67,000
Residential Buildings	11	3,001	18	\$1,761,534	\$106,000
Solid Waste	3	1,119	2	\$170,817	\$12,000
Transportation	17	5,221	17	\$1,734,491	\$206,800
Special Focus Area	3	316	0	\$15,580	\$6,000
Water	4	296	3	\$256,949	\$34,000
GRAND TOTAL OF EMISSION MEASURES	74	25,660	104	\$10,415,969	\$986,210

## Phase I Activities

Table 11 presents recommended savings measures for Phase I implementation. Thirty (30) savings measures are presented; including the municipal facilities upgrades discussed previously, to achieve an emissions reduction of 8,410 tonnes at a gross cost to the City of \$181,400, approximately \$91,000 per year.

***The 30 Phase I activities will achieve  
8,410 tonnes of emissions reductions, 33% of the target.***

Phase I savings measures will leverage community benefit, creating lifecycle savings in the community, and creating approximately 42 jobs.

**Table 11: Phase I Measures**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 2	Commercial Buildings	<u>Peak Demand Reduction</u> : Collaborate with SCE and encourage 50 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	96	0.5	\$48,450	\$1,000
WORK - 4	Commercial Buildings	<u>SCE Business Incentives</u> : Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	0.5	\$49,140	\$2,000
WORK - 6	Commercial Buildings	<u>"The Temperature Club"</u> : Promote community partnership through policies to adjust indoor temperatures to save/degree	I	97	0.5	\$48,450	\$2,000
WORK - 8	Commercial Buildings	<u>Commercial On-Bill Financing/Repayment</u> : Encourage On-Bill Financing/Repayment through SCE, Southern California Gas with green messaging and teamwork in the community	I	180	0.8	\$76,028	\$2,000
BUILD - 3	Commercial Buildings	<u>New and Efficient Construction</u> : Promote the Savings by Design Program from SCE	I	93	0.5	\$47,215	\$1,000
LEARN - 2	Cross-Cutting Initiatives	<u>Green Building Lectures and Continuing Education</u> : Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	I	110	0.6	\$55,840	\$5,000
LIVE - 2	Government Initiatives	<u>Water Conservation Ordinance</u> : Build on and exceed current water conservation activities in the residential sector by 15% community-wide by 2020	I	32	0.5	\$52,438	\$1,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
BUILD - 4	Government Initiatives	<u>Green Building Program</u> : Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.3	\$134,697	\$2,500
BUILD - 6	Government Initiatives	<u>Plan Checks and Permitting</u> : Expedite plan checks for green building projects and major green remodels	I	47	0.0	\$0	\$1,000
GOVERN - 2	Government Initiatives	<u>Desert Cities Energy Partnership</u> : Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	380	1.7	\$166,291	\$2,000
GOVERN - 3	Government Initiatives	<u>Municipal Facility Efficiency Upgrades...Payback Threshold Policy</u> : Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	347	1.5	\$151,745	\$41,900
GOVERN - 5	Government Initiatives	<u>Utility Manager Software</u> : Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	75	0.3	\$32,582	\$5,000
GOVERN - 6	Government Initiatives	<u>Benchmarking</u> : Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	5	0.0	\$1,982	\$5,000
GOVERN - 7	Government Initiatives	<u>Retro Commissioning</u> : Abide by the Commissioning/Retro-commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	5	0.0	\$1,982	\$1,000
GOVERN - 10	Renewable Energy	<u>Roof-Mounted Wind Systems</u> : Support, promote, and enable the installation of 2,000 roof-mounted wind turbines on private property by 2020	I	2,917	15.7	\$1,573,200	\$50,000
LIVE - 8	Residential Buildings	<u>Peak Demand Reduction</u> : Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 30% of the housing stock	I	212	1.5	\$152,179	\$2,000
LIVE - 9	Residential Buildings	<u>Household Efficiency Audits</u> : Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	I	185	1.0	\$104,031	\$2,500
LIVE - 10	Residential Buildings	<u>Residential PACE</u> : Partner and aggressively promote Residential PACE Program to reach 10% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	977	5.8	\$577,235	\$2,500
RECREATE - 2	Residential Buildings	<u>Comprehensive Pool Efficiency</u> : Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating	I	246	1.8	\$177,192	\$2,000
LEARN - 6	Residential Buildings	<u>Save a Ton Campaign</u> : Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	598	3.4	\$339,488	\$2,000
LIVE - 12	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 77% by 2015	I	393	0.5	\$50,000	\$5,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LEARN - 7	Special Focus Area	<u>Agricultural Equipment Fuel Conversion</u> : Seek special agricultural grant funding to offer pilot program for agricultural off-road and support equipment to shift fuel sources (CNG, Propane or Electric)	I	7	0.0	\$2,000	\$2,000
LEARN - 8	Special Focus Area	<u>Agricultural Fertilizer Reduction</u> : Identify strategies to promote low-emissions agricultural practices that strengthens Blythe's role as a regional agricultural leader with an initial pilot program focus on fertilization and crop rotation strategies	I	298	0.1	\$10,000	\$2,000
WORK - 10	Transportation	<u>Employee Shuttles, Van Pools, and Car Pools</u> : Support and expand on existing programs (Palo Verde Transit, Van Pools to prisons) to target employer and employee participation with a goal of 200 additional participants. In addition to savings...grants can be accessed and funds created to provide the security of a "guaranteed-ride home"	I	229	0.9	\$85,278	\$2,000
WORK - 11	Transportation	<u>Telecommuting</u> : Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Blythe	I	147	0.5	\$54,579	\$2,000
MOBILITY - 2	Transportation	<u>Alternative Fueling Stations</u> : Complete and promote 2 "in process" CNG fueling stations for municipal fleet and public use	I	129	0.5	\$50,000	\$5,000
GOVERN - 12	Transportation	<u>Electric Vehicle Charging Stations</u> : Seek grant funding and private sector partnerships to install 2 EV charging stations on public and private property	I	4	0.0	\$1,670	\$1,000
GOVERN - 14	Water	<u>Waste Water Treatment Facility Pump Upgrades</u> : Continue collaboration with DCEP and SCE on auditing services and pump upgrade prioritization for Blythe's Waste Water Treatment Facility	I	86	0.2	\$18,000	\$27,000
RECREATE - 4	Water	<u>Irrigation System Controls</u> : Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	\$127,140	\$1,000
RECREATE - 5	Water	<u>Drought-Tolerant Landscaping</u> : Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	27	0.1	\$9,934	\$1,000

Commercial Buildings	5	578	3	\$269,283	\$8,000
Cross-Cutting Initiatives	1	110	1	\$55,840	\$5,000
Government Initiatives	9	4,082	21	\$2,114,917	\$109,400
Renewable Energy	1	212	2	\$152,179	\$2,000
Residential Buildings	5	2,399	12	\$1,247,946	\$14,000
Solid Waste	1	7	0	\$2,000	\$2,000
Special Focus Area	2	527	1	\$95,278	\$4,000
Transportation	4	366	1	\$124,249	\$35,000
Water	2	129	1	\$137,074	\$2,000

Subtotal of Phase I Measures	30	8,410	42	\$4,198,765	\$181,400
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## Phase II and III Activities

The next two phases of savings will expand the base of measures implemented in Phase I. PACE financing is seen as key to building upgrades. As real estate development increases, the green building program will steer infrastructure upgrades towards sustainability. Advances in mobility and auto efficiency will lower transportation related emissions.

These measures and phases will be refined in years to come based on measuring and tracking the progress with emissions reductions. Ultimately, Phase II and Phase III savings measures will be based on economic conditions, additional regulation, advances in technology and financing. The City of Blythe will also track advances in the Executive Order that calls for an emissions reduction of 80% from 1990 levels by 2050.

**Table 12: Phase II Measures**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 1	Commercial Buildings	<u>Commercial Energy Audits</u> : Work with DCEP to promote energy audits for 250,000 square feet of commercial buildings and confirm replacement/upgrade schedules	II	183	0.6	\$63,664	\$2,000
WORK - 3	Commercial Buildings	<u>Energy-Efficient, Commercial-Sector Lighting</u> : Promote and leverage existing SCE incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	II	176	0.6	\$64,732	\$2,500
WORK - 5	Commercial Buildings	<u>Integrated Lighting Systems</u> : Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 200,000 square feet of commercial space	II	164	1.0	\$99,256	\$12,000
BUILD - 1	Commercial Buildings	<u>Sustainable Parking Lots</u> : Program to reduce the heat island effect through the promotion of parking lot coverings and coatings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	45	0.2	\$23,366	\$1,000
BUILD - 2	Commercial Buildings	<u>"Cool Roofs"</u> : Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	II	15	0.1	\$8,714	\$15,000
LEARN - 1	Commercial Buildings	<u>Commercial Sector Green Building</u> : Target and work with minimum of 50 businesses for Green Business Program	II	300	0.9	\$91,901	\$10,000
GOVERN - 1	Cross-Cutting Initiatives	<u>Energy Management Position</u> : Designate a staff member to continue working on Environmental Management and Sustainability projects to promote energy efficiency and carbon savings	II	741	1.0	\$100,000	\$15,000
LEARN - 3	Cross-Cutting Initiatives	<u>Community Energy Champions</u> : Solicit nominations and promote a Community Energy Champion each year to show value of efficiency and its energy, dollar, and carbon savings	II	15	0.2	\$21,630	\$2,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
LEARN - 4	Cross-Cutting Initiatives	<u>Internships</u> : Provide student internships in city government each year to focus on updates to the GHG inventory and the climate action plan and to promote energy efficiency in Blythe	II	2	0.0	\$0	\$5,000
LEARN - 5	Cross-Cutting Initiatives	<u>Workforce Development</u> : Promote workforce development in partnership with Palo Verde College, College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0	\$0	\$10,000
LIVE - 1	Government Initiatives	<u>Plan Checking and Permitting</u> : Expedite plan check process for energy-efficiency measures and remodels and renewable energy installations to reduce carbon emissions	II	207	1.4	\$141,909	\$1,000
LIVE - 4	Government Initiatives	<u>Landscaper Certification</u> : Require 100% of licensed landscapers to be certified by CVAG, including annual training	II	39	0.5	\$48,900	\$5,000
GOVERN - 8	Government Initiatives	<u>Group Purchasing</u> : Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	5	0.2	\$20,000	\$2,000
RECREATE - 1	Government Initiatives	<u>Ball field Lighting</u> : Explore permit fees for night time ball field usage	II	15	0.1	\$5,519	\$10,000
LIVE - 5	Renewable Energy	<u>Solar "Champion"</u> : Promote solar photovoltaic systems and solar thermal systems for residential homeowners to develop 200 "Solar Champion" systems	II	1,516	4.4	\$435,332	\$4,000
GOVERN - 11	Renewable Energy	<u>Solar Ready Ordinance</u> : Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	\$217,666	\$5,000
LIVE - 7	Residential Buildings	<u>Energy-Efficient Lighting</u> : Seek grant funding through the DCEP to distribute 2,000 compact fluorescent and LED lamps for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	II	279	2.0	\$200,376	\$3,000
LIVE - 11	Residential Buildings	<u>On-Bill Finance/Repayment</u> : Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	II	287	0.7	\$72,147	\$2,000
BUILD - 8	Residential Buildings	<u>Affordable Housing</u> : Promote the construction of energy-efficient affordable housing with private-sector partners	II	94	0.4	\$43,993	\$25,000
BUILD - 9	Residential Buildings	<u>Green Home Tours</u> : Encourage Chamber of Commerce to administer "Green Homes Tours" annually to showcase six projects each year	II	39	0.5	\$47,215	\$4,000
WORK - 9	Solid Waste	<u>Food Waste Composting at Restaurants</u> : Coordinate with waste hauler to support and promote restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	19	0.2	\$20,817	\$2,000
MOBILITY - 4	Transportation	<u>Eco-Conscious Driving</u> : Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance. AKA "hyper-miling."	II	94	0.4	\$35,000	\$5,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
MOBILITY - 6	Transportation	<u>Buses</u> : Promote the benefits of buses to increase ridership by 500 riders by providing promotions and incentives for new riders such as vouchers	II	278	3.2	\$317,755	\$25,000
MOBILITY - 7	Transportation	<u>Buses and Shuttles</u> : Partner and collaborate with Palo Verde Transit, local employers (such as the prisons), the college and popular tourist destinations to increase ridership, improve rider efficiency and improve routing on local and regional transit routes.	II	111	1.3	\$127,099	\$2,500
MOBILITY - 8	Transportation	<u>Van Pools</u> : Partner and recognize all Blythe major employers with over 25 employees for van pools	II	281	1.0	\$104,468	\$5,000
MOBILITY - 9	Transportation	<u>Electric Vehicles</u> : Design and promote a Pilot Neighborhood Electric Vehicle program supporting and encouraging residents to lease and purchase electric vehicles in the community potentially with recognition and preferential parking for participants.	II	836	3.1	\$310,821	\$21,000
MOBILITY - 10	Transportation	<u>Car Sharing</u> : Support and promote a local committee to attract and initiate a subscriber-based pilot CarShare program in Blythe with city-providing only "home parking spots" with signage for publicly available vehicles with a goal to serve 5% of existing drivers who each reduce their driving by 25%	II	579	2.2	\$215,356	\$5,000
MOBILITY - 12	Transportation	<u>Anti-Idling</u> : Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles in specific zones. In accordance with CARB rules regarding idling of commercial vehicles	II	229	1.0	\$96,000	\$2,000
GOVERN - 13	Transportation	<u>Transit Oriented Development</u> : Promote transit oriented development to foster development in line with mass transit corridors	II	349	0.3	\$34,900	\$1,000
RECREATE - 3	Transportation	<u>Visitor Shuttles</u> : Collaborate with the Palo Verde Transit, the Chamber of Commerce, local hospitality and tourist attractions to seek grants, and other financial opportunities to promote visitor and special event shuttles between key locations	II	872	0.4	\$38,869	\$5,000
RECREATE - 6	Water	<u>Golf Course Water Management Recognition</u> : Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	81	1.0	\$101,875	\$5,000

Commercial Buildings	6	883	4	\$351,633	\$42,500
Cross-Cutting Initiatives	4	760	1	\$121,630	\$32,000
Government Initiatives	5	1,782	7	\$651,660	\$22,000
Renewable Energy	2	658	4	\$418,042	\$8,000
Residential Buildings	4	439	2	\$184,172	\$33,000
Solid Waste	1	94	0	\$35,000	\$5,000
Transportation	8	3,535	12	\$1,245,268	\$66,500
Water	1	81	1	\$101,875	\$5,000
<b>Subtotal of Phase II Measures</b>	<b>31</b>	<b>8,232</b>	<b>31</b>	<b>\$3,109,280</b>	<b>\$214,000</b>

**Table 13: Phase III Measures**

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
WORK - 7	Commercial Buildings	<u>Commercial PACE Program</u> : Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	III	613	2.6	\$260,251	\$5,000
LIVE - 3	Government Initiatives	<u>Gray water-Ready Ordinance</u> : Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	III	3	0.0	\$26	\$5,000
BUILD - 5	Government Initiatives	<u>Green Building Support Services</u> : Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	III	274	1.3	\$134,697	\$50,000
GOVERN - 4	Government Initiatives	<u>Municipal Facility Efficiency Upgrades</u> : Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	51	0.2	\$22,490	\$329,510
GOVERN - 9	Renewable Energy	<u>Solar Public/Private Partnerships</u> : Explore private-public partnerships for renewable energy installations on public land (performance-based contracts and power purchase agreements).	III	6,192	22.8	\$2,276,505	\$8,000
LIVE - 6	Residential Buildings	<u>Pool Pumps</u> : Promote SCE program offering rebates on high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 100 units	III	49	0.4	\$35,438	\$5,000
BUILD - 7	Residential Buildings	<u>Shade Trees</u> : Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	\$12,240	\$56,000
LIVE - 13	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 87% by 2020	III	707	1.0	\$100,000	\$5,000
LEARN - 9	Special Focus Area	<u>Agricultural Process Equipment Efficiency</u> : Leverage DCEP and other potential Palo Verde Valley partnerships to promote agricultural process emission reductions targeted at electricity and natural gas efficiency	III	11	0.0	\$3,580	\$2,000
MOBILITY - 1	Transportation	<u>Hybrid Vehicles</u> : Promote the purchase of hybrid vehicles in the community potentially with recognition and preferential parking for participants with a target of 300 hybrids by 2020	III	820	1.5	\$152,250	\$8,300
MOBILITY - 3	Transportation	<u>Alternative Fueling Stations</u> : Foster public/private partnerships to promote the installation of 2 additional CNG fueling stations and 2 EV charging stations for CNG and EV fleets	III	133	1.0	\$100,000	\$12,000

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City
MOBILITY - 5	Transportation	<u>Bike, Walking, NEV</u> : Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	III	12	0.0	\$4,620	\$100,000
MOBILITY - 11	Transportation	<u>Senior Vehicle Tune-Ups</u> : Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	118	0.1	\$5,827	\$5,000

Commercial Buildings	1	613	3	\$260,251	\$5,000
Government Initiatives	3	328	2	\$157,213	\$384,510
Renewable Energy	1	6,192	23	\$2,276,505	\$8,000
Residential Buildings	2	84	0	\$47,678	\$61,000
Solid Waste	1	707	1	\$100,000	\$5,000
Special Focus Area	1	11	0	\$3,580	\$2,000
Transportation	4	1,083	3	\$262,697	\$125,300

Subtotal of Phase III Measures	13	9,018	31	\$3,107,924	\$590,810
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## **VI. Tracking Results and Measuring Progress**

The practice of reducing GHG emissions is new to most California cities and tribes. While many of the policies, programs, and initiatives are familiar (they address electric efficiency, water use, our mobility, etc.), they are presented in this Climate Action Plan in a new way and with a new focus. Many assumptions are made, making the practice of measuring actual results all the more important to direct mid-course programmatic changes as need be.

The City of Blythe will diligently track climate action results to verify reductions and to gauge the savings measures' impacts toward the goals set. Progress reports will be provided quarterly to the City Council by a designated staff member, with an annual report of greater depth flagging overall progress, key accomplishments and lessons, as well as challenges to successful implementation.

Each year, the Planning Department, with the support of staff and consultants as needed, will review the progress toward the City's climate protection goals. The potential for interns to assist in this process is being evaluated. Metrics that will be tracked for both City operations and community-wide include...resource savings, economic savings, job creation, and carbon reductions:

### **Resource Savings**

- Kilowatt-hour savings
- Therms of natural gas savings
- Gasoline and other transportation fuel savings
- Water savings
- Recycling diversion rate

### **Economic Savings**

- Electricity bill savings
- Natural gas bill savings
- Water efficiency savings
- Other resource savings

### **Job Creation**

- Types of jobs
- Number of jobs
- Economic development value

### **Greenhouse Gas Savings**

- Source of emissions reductions
- Tonnes of emissions reductions

- Cost per tonne of avoided emissions
- Percentage of reduction goal achieved in each period

Economic values will be considered and analyzed to track discrepancies with the Plan, and to update the Plan accordingly. Which programs are successful? Which areas need additional support? What new opportunities are on the horizon? A working draft will be maintained with quarterly updates; every two years the Climate Action Plan will be updated and reissued.

Finally, the City will make the Climate Action Plan easily accessible to its members and stakeholders. The City will provide mechanisms for comments from citizens and staff using on-line survey tools and hard copy input sheets. Every two years, the City will also plan and provide a yearly community forum for interested stakeholders to keep them apprised of the work the City is doing and the progress that is being made and to solicit updated input for prioritization of actions.

## Appendix A: Glossary of Terms and Abbreviations

This glossary contains definitions for terms and abbreviations used in this Plan. The definitions were adapted from a number of sources including the U.S. Environmental Protection Agency, the California Air Quality Board website, Merriam-Webster Online, and Wikipedia.

**AB 32:** See California Assembly Bill 32, the *Global Warming Solutions Act of 2006*.

**Adaptation:** The ability of a system to adjust to the potential impacts of climate change or other environmental disturbances. Compare to “Mitigation,” which means the ability to reduce the amount of emissions caused by an activity.

**Alternative Fuels:** Substitutes for traditional fossil-fuel-derived liquid motor vehicle fuels like gasoline and diesel. Alternative fuels include biodiesel, hydrogen, electricity, compressed natural gas, methanol, ethanol, and mixtures of alcohol-based fuels with gasoline.

**Alternative Fuel Vehicle:** A vehicle powered by an alternative fuel as opposed to traditional gasoline or diesel.

**Anthropogenic:** Refers to greenhouse gas emissions or reductions that are a direct result of human activities.

**Assembly Bill 32 (AB 32):** The *Global Warming Solutions Act of 2006* is the law that set the State of California’s 2020 greenhouse gas emissions reduction target of reducing greenhouse gas emissions to 1990 levels. It also directed the California Air Resources Board to develop a Scoping Plan to outline how best to reach the 2020 target.

**Atmosphere:** The blanket of air surrounding the earth that supports life. The atmosphere absorbs energy from the sun and retains heat. It also recycles water and other chemicals and protects the earth from high-energy radiation and the frigid vacuum of space.

**Baseline Emissions:** The amount of greenhouse gas emissions released in a designated year against which future changes in emissions levels are measured. For Green for Life jurisdictions, the baseline year is 2010, selected at the year for which the best data were available.

**Business as Usual (BAU):** What to expect in the normal course of events.

**Biodiesel:** A form of diesel fuel manufactured from vegetable oils (used or new) or animal fats. Biodiesel can be used in its pure form (B100) or blended with petroleum diesel in varying proportions.

**Building Envelope:** The physical separation between the interior and the exterior of a building – made up of the walls and insulation, windows and doors, roof, foundation, etc. The envelope



serves as the outer shell (sometimes called the skin) of the building, and allows for control of the indoor environment (e.g., heating, cooling, moisture control, air pressure).

**California Public Utilities Commission (CPUC):** Regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. Its purpose is to “protect consumers and ensure the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy.”

**Carbon Dioxide (CO<sub>2</sub>):** The greenhouse gas whose concentration is being most affected by human activities. CO<sub>2</sub> also serves as the reference to compare all other greenhouse gases (see Carbon Dioxide Equivalencies). The major source of CO<sub>2</sub> emissions is fossil fuel combustion. Significant CO<sub>2</sub> emissions are also produced by forest clearing, biomass burning, and non-energy production processes such as cement production.

**Carbon Dioxide Equivalent (CO<sub>2</sub>e):** A metric used to compare emissions of various greenhouse gases. The greenhouse gas inventory process converts all other gases to their carbon dioxide equivalents by multiplying the mass of the gas by its global warming potential.

**Carbon Footprint:** The total set of greenhouse gas emissions caused directly and indirectly by an individual, organization, event, or product. The Green for Life Greenhouse Gas Inventory measures the carbon footprint of local government operations as well as of the entire community.

**Climate:** The average weather (usually taken over a 30-year time period) for a particular region and time period. Climate is not the same as weather. It is the average pattern of weather for a particular region. Climatic elements include average annual temperature, humidity, sunshine, wind speed, precipitation, and other measures of atmospheric conditions.

**Climate Action Plan:** A plan that is set in place for a city or other jurisdiction to follow in order to control and improve its energy use and emissions.

**Coachella Valley Association of Governments (CVAG):** The regional planning agency coordinating government services in the Coachella Valley, providing solutions to common issues of the local governments and tribes that are members.

**Demand Response:** Actions or programs offered by the local utility to induce ratepayers to temporarily reduce or shift electrical consumption when so requested. These requests would typically be in response to either a constrained electrical grid or suddenly increasing electrical prices.

**Emissions:** Pollution (including noise, heat, radiation, and greenhouse gases) discharged into the atmosphere by individual, residential, commercial, and industrial activities and facilities. A greenhouse inventory measures emissions from a variety of sources (for example, from the

burning of natural gas or of transportation fuels) and sectors (such as from industrial or residential buildings).

**Emissions Coefficients:** The greenhouse gas “impact” that comes from a given utility’s fuel mix. Every electric utility, for example, generates power from a “portfolio” of power sources: natural gas plants, nuclear plants, dams, etc. That utility’s emissions coefficients are determined by its specific mix. The coefficients change year-to-year.

**Energy Conservation:** Reducing energy consumption. Energy conservation can be achieved by behavioral change, for instance turning off appliances and idle equipment, slightly raising temperatures, etc. Versus “energy efficiency” that is based on advanced technologies and getting the most productivity from each unit of energy.

**Energy Efficiency:** Using less energy to provide the same level of service or complete the same task. For example, a more efficient light will use less electricity to provide the same amount of illumination.

**California Executive Order S-03-05:** on June 1, 2005, Governor Schwarzenegger signed Executive Order S-3-05 which established the climate change emission reduction targets for California: By 2010, reduce emissions to 2000 levels; by 2020, reduce emissions to 1990 levels; and by 2050, reduce emissions to 80 percent below 1990 levels.

**Flexible Work Arrangements:** Work arrangements that allow employees to deviate from a set schedule or location. This could include options for telecommuting, working a compressed work week, and starting or ending the workday at times other than conventional shift times.

**Fuel Efficiency:** The distance a vehicle can travel on an amount of fuel. This is most often measured in miles traveled per gallon of fuel. A higher-efficiency vehicle travels farther on a gallon of fuel than similar vehicles.

**Fuel Mix:** Every electric utility generates power from a “portfolio” of power sources: natural gas plants, nuclear plants, dams, etc. That utility’s fuel mix determines its emissions rate per kWh of electricity produced. In California, the Renewable Portfolio Standard regulates the utility fuel mix.

**Fugitive Emissions:** Miscellaneous emissions released from a given activity, like refrigerants released as a result of leaks, fertilizers from golf courses, etc.

**General Plan:** A long-range policy document to guide land use decisions about physical, economic, and environmental growth. California State law requires counties and cities to have a General Plan which contains seven elements: Land Use; Transportation; Housing; Open Space; Conservation; Safety; and Noise. County general plans cover unincorporated areas.

**Global Protocol for Community-Scale GHG Emissions (GPC):** A tool to assist local governments to develop community-scale inventories, developed by C40 Cities Climate Leadership Group

and ICLEI Local Governments for Sustainability In collaboration with: World Bank, UNEP, UN-HABITAT, World Resources Institute.

**Global Warming:** An increase in the near-surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is most often used to refer to the warming occurring now or predicted to occur as a result of increased emissions of greenhouse gases due to human activity.

**Global Warming Potential:** A value that is used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWPs are based on the heat-absorbing ability of each gas relative to that of carbon dioxide (CO<sub>2</sub>), as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years). For example, methane has a global warming potential of 21.

**Green Building:** A structure constructed using materials and building practices that reduce its impact on the environment throughout its entire life (siting, design, construction, operations, and deconstruction). Green buildings are resource efficient, using less energy, water, and other materials.

**Green Infrastructure:** The network of trees, plants, and natural ecosystems in a community. These provide services to a community, such as decreasing rainwater runoff, providing healthy soils, removing air pollutants and greenhouse gases from atmosphere, and providing shade and beautification.

**Greenhouse Effect:** Carbon dioxide and other atmospheric gases warm the surface of the planet by trapping heat close to the surface of the earth. In a natural state, the greenhouse effect warms the planet, making it habitable by humans. However, human activities have increased the amount of carbon dioxide and other greenhouse gases in the atmosphere. Higher levels of greenhouse gases trap more heat, causing temperatures to rise.

**Greenhouse Gas (GHG):** A gas, including water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) among others, which traps heat close to the surface of the earth, contributing to global warming and climate change.

**Greenhouse Gas Inventory (GHG Inventory):** The EPA defines a GHG Inventory as follows: “A greenhouse gas inventory is an accounting of greenhouse gases (GHGs) emitted to or removed from the atmosphere over a period of time. Policy makers use inventories to establish a baseline for tracking emission trends, developing mitigation strategies and policies, and assessing progress. An inventory is usually the first step taken by entities that want to reduce their GHG emissions.”

**Infrastructure:** The basic shared physical structures needed for an urban area to function in an efficient, safe manner. The term typically refers to items such as roads, drinking water systems, sewers, energy systems, and telecommunication systems in a community.

**Grid:** The transmission and distribution system for electricity made up of a network of synchronized power providers and operated by one or more control centers. The United States mainland has three grids: the Eastern Interconnect, the Western Interconnect, and the Texas Interconnect.

**International Council for Local Government Initiatives, now known as Local Governments for Sustainability USA (ICLEI):** International organization at the forefront of measuring greenhouse gases and developed the first GHG inventories starting in 1990. Today, members come from 70 countries and represent more than 569,885,000 people. ICLEI provides technical consulting, training, and information services to build capacity, share knowledge, and support local government in the implementation of sustainable development at the local level.

**Intergovernmental Panel on Climate Change (IPCC):** The leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) in 1988 to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.

**Local Government Operations Protocol (LGOP):** A standard set of guidelines developed by ICLEI, the World Resources Institute and the California Air Quality Board, aimed at assisting local governments to develop their greenhouse gas inventories.

**Kilowatt (kW):** A unit of power equal to one thousand watts. The amount of power that a power source has the capacity to generate is typically measured in terms of kW or, in the case of larger systems, in terms of megawatts (MW). Kilowatt-hour (kWh), by contrast, is a measure of how much energy is actually used or generated over a specific period of time.

**Kilowatt-hour (kWh):** An amount of electricity equivalent to the use of one kilowatt for one hour. A one hundred watt light bulb that is on for 10 hours uses one kilowatt-hour of electricity (100 watts x 10 hours = 1,000 watt-hours = 1 kilowatt-hour).

**Kyoto Protocol:** A treaty negotiated in December 1997 at the City of Kyoto, Japan. It committed its signatories to reduce their collective emissions of greenhouse gases by 5.2% compared to the year 1990. Some 37 industrialized countries and the European Community signed the treaty, which provided for a number of flexible mechanisms to reach the reductions goals. The United States did not sign the treaty, and Canada withdrew from the treaty in 2011.

**Leadership in Energy and Environmental Design (LEED):** A building certification program, run under the auspices of the U.S. Green Building Council (USGBC). LEED concentrates its efforts on improving performance across five key areas of environmental and human health: energy efficiency, indoor environmental quality, materials selection, sustainable site development and water savings.

**Measures:** The primary component of the Climate Action Plan. The measures are specific short and long-term policies, programs, and actions that the jurisdiction will carry out to reduce its greenhouse gas emissions.

**Megawatt (MW):** One million watts. A typical power plant generates 500 - 1,000 MW of power.

**Methane (CH<sub>4</sub>):** A greenhouse gas that traps 21 times the amount of heat as carbon dioxide. Methane is produced through the decomposition of waste in landfills, animal digestion, decomposition of animal wastes, incomplete fossil fuel combustion, and the production and distribution of natural gas, oil, and coal.

**Metric Ton (or tonne):** Common international measurement for the quantity of greenhouse gas emissions. A metric ton is equal to 2,205 lbs. or 1.1 short tons. It is the common form of ton used in the United States.

**Mitigation:** A human intervention to either reduce the amount of greenhouse gases being emitted into the atmosphere or remove previously emitted gases from the atmosphere.

**Nitrous Oxide (N<sub>2</sub>O):** A powerful greenhouse gas with the ability to trap 310 times the amount of heat as a molecule of CO<sub>2</sub>. Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.

**Off-Peak:** The opposite of Peak (see below), that is, the time or hours of the day when demand for electricity is at its lowest and thus prices are also lower.

**Property Assessed Clean Energy financing (PACE):** PACE financing, first enabled in California by AB 811 (2008) and then spreading across the country, makes it possible for financing of energy upgrades to be repaid via a property tax assessment. PACE programs may be set up, funded and administered by local governments or by third parties.

**Peak Usage Period or Peak Demand:** The time period during which the maximum level of demand for electricity occurs. Peak demand may be measured daily, monthly, seasonally or yearly, but for a utility it is typically the single half hour or hour representing the highest point of customer consumption of electricity on a given day.

**Photovoltaic (PV):** Refers to the effect of sunlight (photons) generating electricity without mechanical conversion. Typically used in conjunction with the equipment associated with a solar electric system, such as "PV panels" or "PV system."

**Renewable Energy/Power:** Energy generated from sources that are naturally replenished or not used up in the course of providing power (e.g., wind, solar, biomass, and geothermal). This is in contrast to the burning of fossil fuels, which destroys the fuel source and thereby depletes the overall amount of fuel available.

**Renewable Portfolio Standard (RPS):** Each electric utility generates power through a “portfolio” of sources: natural gas power plants, nuclear plants, large hydroelectric plants, etc. In California, the make-up of the portfolio is regulated by the Renewable Portfolio Standard. In 2010 the standard was raised to require 33% of all energy be from “renewable sources” by 2020.

**Senate Bill 375 (SB 375):** The *Sustainable Communities and Climate Protection Act*, passed in 2008, was drafted and adopted to reduce vehicle emissions by integrating land use with transportation planning.

**Sequestration:** The uptake and storage of carbon from the atmosphere. Most commonly refers to trees and plants absorbing carbon dioxide through photosynthesis.

**Smart Grid:** An electricity system that utilizes two-way communication between power suppliers and consumers. This allows for adjustments to a facility’s operations to save energy, reduce cost, and increase the reliability of the power supply. A smart grid includes a monitoring system at facilities that can turn off or adjust systems to reduce demand at peak times when power is more expensive. For example, a smart grid could temporarily turn off selected appliances, such as washing machines, or adjust a building temperature by a few degrees to save power.

**Smart Meter:** An electrical meter that tracks power consumption in real-time, communicates with the local utility company for monitoring and billing purposes, and (if connected to a smart grid) can adjust a building’s energy use automatically to reduce demand on the power grid at peak use times.

**Solar Panel:** A photovoltaic cell that can convert light directly into electricity. Typical solar cells use semiconductors made from silicon.

**Solar Thermal:** Refers to devices that use the heat from the sun to heat water.

**Strategies:** Groups of similar emissions reduction measures included in the Climate Action Plan.

**Sustainability:** In a broad sense, the capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time. For human society, it is the potential for long-term maintenance of well-being, which in turn depends on the well-being of the natural world and the responsible use of natural resources. Sustainability has multiple facets: environmental, economic, and social.

**Therm(s):** A unit of measurement of natural gas. It is approximately the energy equivalent of burning 100 cubic feet of natural gas. It is equivalent to 100,000 British thermal units (BTU) or 29.3 kilowatt-hours of electrical energy.

**Title 24:** California Code of Regulations (CCR), Title 24, is also known as the California Building Standards Code. It is a compilation of building criteria that is updated every three years.

**Tonne:** see Metric Ton.

**United Nations World Commission on Environment and Development (WCED):** This group published “Our Common Future,” also known as the Brundtland Report, in 1987. It is most famous for focusing on environmental threats as “elements of a single crisis of the whole.” The Brundtland Report also coined an often-quoted definition of sustainability as: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

**U.S. Environmental Protection Agency (EPA):** The federal environmental science, research, education, assessment, and regulatory agency. The mission of the Environmental Protection Agency is to protect human health and the environment.

**Waste Characterization Study:** An analysis of a facility’s waste not being recycled or composted that involves sorting the garbage produced by type (e.g., paper, food waste, plastic) to determine what is being thrown away.

**Waste Diversion:** A waste reduction strategy focused on the recycling or composting of materials, diverting for use in new products or materials what would otherwise have been sent to a landfill.

**Waste Reduction:** Techniques such as source reduction, recycling, or composting that reduce waste generation or prevent waste from being created at all.

**Waste Stream:** The total flow of solid waste from homes, businesses, institutions and manufacturing plants that is recycled, composted, burned, or disposed of in landfills.

**Watt:** The standard measure of an amount of energy, usually electricity. For example, a 60-watt light bulb requires 60 watts of electricity. Energy use is measured in terms of the number of watts used over a period of time (see kilowatt-hour).

**Weather:** The specific condition of the atmosphere at a particular place and time. It is measured in terms of such factors as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather changes from hour to hour, day to day, and season to season. Climate is the average of weather over time and space. A simple way of remembering the difference is that climate is what you expect (e.g., cold winters) and weather is what happens (e.g., a blizzard).



## Appendix B: Savings Measures Analysis by Cost-Effectiveness

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
GOVERN - 9	Renewable Energy	<u>Solar Public/Private Partnerships</u> : Explore private-public partnerships for renewable energy installations on public land (performance-based contracts and power purchase agreements).	III	6,192	22.8	\$2,276,505	\$8,000	\$1.29	9,000 kW (9MW) of solar PV generating 18,067,500 kWh (With PPA on Public Land)
LIVE - 10	Residential Buildings	<u>Residential PACE</u> : Partner and aggressively promote Residential PACE Program to reach 10% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	977	5.8	\$577,235	\$2,500	\$2.56	250 homes, 30% kWh savings, 5% Natural Gas savings (672,750 kWh and 2,500 therms)
LIVE - 5	Renewable Energy	<u>Solar "Champion"</u> : Promote solar photovoltaic systems and solar thermal systems for residential homeowners to develop 200 "Solar Champion" systems	II	1,516	4.4	\$435,332	\$4,000	\$2.64	200 homes with 10 kW solar PV (5.5 sun hours a day) resulting in 2,007,500 kWh/\$415,553 production annually, 200 homes with solar DHW (avg. 50 gals a day usage) resulting in 195,151 kWh/\$40,392 and 13,900 therms/\$14,734 savings annually
GOVERN - 13	Transportation	<u>Transit Oriented Development</u> : Promote transit oriented development to foster development in line with mass transit corridors	II	349	0.3	\$34,900	\$1,000	\$2.87	Reduce city-wide VMT by 2% (\$3.50/gal. of gas)
LEARN - 6	Residential Buildings	<u>Save a Ton Campaign</u> : Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	598	3.4	\$339,488	\$2,000	\$3.34	Assume 30% of homes (1,641) and save 10% household electricity and 5% therms resulting in 1,471,977 kWh saved annually (897 kWh per home) and 32,820 therms (20 therms per home).
LIVE - 1	Government Initiatives	<u>Plan Checking and Permitting</u> : Expedite plan check process for energy-efficiency measures and remodels and renewable energy installations to reduce carbon emissions	II	207	1.4	\$141,909	\$1,000	\$4.83	250 homes 30% kWh savings 5% Natural Gas savings (672,750 kWh and 2,500 therms)
GOVERN - 2	Government Initiatives	<u>Desert Cities Energy Partnership</u> : Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	380	1.7	\$166,291	\$2,000	\$5.26	DCEP...Data from Energy Leader Partnership annualized data from 2004-2011 ...Municipal 9,376 kWh/yr., 1,310,399 Community kWh/yr. Total 1,319,775 kWh
RECREATE - 3	Transportation	<u>Visitor Shuttles</u> : Collaborate with the Palo Verde Transit, the Chamber of Commerce, local hospitality and tourist attractions to seek grants, and other financial opportunities to promote visitor and special event shuttles between key locations	II	872	0.4	\$38,869	\$5,000	\$5.73	146,000 trips avoided...50 users per day for 8 years. 9.4 passengers per vehicle, 2.7 leverage factor, 9.8 miles avg trip length, 19.7 avg passenger fuel economy. (\$3.50/gal. of gas and \$4.00/gal. of diesel)



Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
LEARN - 8	Special Focus Area	<u>Agricultural Fertilizer Reduction</u> : Identify strategies to promote low-emissions agricultural practices that strengthens Blythe's role as a regional agricultural leader with an initial pilot program focus on fertilization and crop rotation strategies	I	298	0.1	\$10,000	\$2,000	\$6.71	Assume a 5% reduction (960 kg) in N2O emissions related to fertilizer usage from 19,201 kg in 2010 as reported in the 2010 Greenhouse Gas Inventory
LIVE - 11	Residential Buildings	<u>On-Bill Finance/Repayment</u> : Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	II	287	0.7	\$72,147	\$2,000	\$6.97	15% of housing stock (820 homes), 40% kWh savings, 30% natural gas therms savings
LIVE - 13	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 87% by 2020	III	707	1.0	\$100,000	\$5,000	\$7.07	2009 diversion rate of 72.8% and characterization study (2008) from Cal-Recycle with consultant calculations then entered into the CACP software. consultant assumption on savings dollars
RECREATE - 2	Residential Buildings	<u>Comprehensive Pool Efficiency</u> : Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating	I	246	1.8	\$177,192	\$2,000	\$8.13	Target 500 additional pools, 1,712 kWh/yr. savings per pump resulting in 856,000 kWh/year
WORK - 7	Commercial Buildings	<u>Commercial PACE Program</u> : Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	III	613	2.6	\$260,251	\$5,000	\$8.16	Efficiency upgrades to 300,000 sq. ft. of commercial space...30% reduction in elec. 5% reduction in natural gas resulting in savings of 930,150 kWh/yr. and 3,477 therms Nat Gas/yr. (energy upgrades); 530kW PV producing 1,063,975 kWh/yr.,...24 businesses with solar hot water saving 15,391 kWh and 3,175 therms Nat gas/yr. (renewable) Assume about 75 companies
MOBILITY - 10	Transportation	<u>Car Sharing</u> : Support and promote a local committee to attract and initiate a subscriber-based pilot CarShare program in Blythe with city-providing only "home parking spots" with signage for publicly available vehicles with a goal to serve 5% of existing drivers who each reduce their driving by 25%	II	579	2.2	\$215,356	\$5,000	\$8.64	500 car share participants, 30% reduction in vehicle miles, 8,081 avg annual vehicle miles per person before car share, \$2.40 cost per car share mile, 19.7 mpg fuel economy 1,212,150 fewer miles driven (\$3.50/gal. of gas)
WORK - 10	Transportation	<u>Employee Shuttles, Van Pools, and Car Pools</u> : Support and expand on existing programs (Palo Verde Transit, Van Pools to prisons) to target employer and employee participation with a goal of 200 additional participants. In addition to savings...grants can be accessed and funds created to provide the security of a "guaranteed-ride home"	I	229	0.9	\$85,278	\$2,000	\$8.73	Increase employee use of alternative transportation by 200 participants, 50 mile round trip, 24,365 gallons of gas saved (\$3.50/gal. of gas)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
MOBILITY - 12	Transportation	<u>Anti-Idling</u> : Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles in specific zones. In accordance with CARB rules regarding idling of commercial vehicles	II	229	1.0	\$96,000	\$2,000	\$8.73	Limiting Idling for 100 heavy trucks, Assume each vehicle idles 1 hour every day for 240 days a year, 1 gallon of diesel used per hour of idling, \$4/gallon of diesel 240 gallons per vehicle/yr., \$720 per vehicle/yr.
BUILD - 4	Government Initiatives	<u>Green Building Program</u> : Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.3	\$134,697	\$2,500	\$9.12	50 new or "gut-rehab" homes at 3000 square feet average...assume 25% savings...result of 583,500 kWh and 13,125 therms saved annually
LIVE - 8	Residential Buildings	<u>Peak Demand Reduction</u> : Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 30% of the housing stock	I	212	1.5	\$152,179	\$2,000	\$9.43	Assume 30% of homes (1,641) and save 5% household electricity (448 kWh per home) resulting in 735,168 kWh saved annually
RECREATE - 4	Water	<u>Irrigation System Controls</u> : Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	\$127,140	\$1,000	\$9.80	26% savings, 300 acres, 652,000 gallons of water used per acre, \$0.0025/gallon, 0.0035 kWh/gallon, \$50/acre to install sensor saving 50,856,000 gallons of water, 177,996 kWh
MOBILITY - 1	Transportation	<u>Hybrid Vehicles</u> : Promote the purchase of hybrid vehicles in the community potentially with recognition and preferential parking for participants with a target of 300 hybrids by 2020	III	820	1.5	\$152,250	\$8,300	\$10.12	300 cars saving 145 gallons per vehicle/yr. resulting in 43,500 gallons saved annually (\$3.50/gal. of gas)
WORK - 2	Commercial Buildings	<u>Peak Demand Reduction</u> : Collaborate with SCE and encourage 50 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	96	0.5	\$48,450	\$1,000	\$10.42	50 businesses participating with 8000 kWh/yr. 200 therms/yr. reduction each resulting in 400,000 kWh and 10,000 therms annual savings
BUILD - 3	Commercial Buildings	<u>New and Efficient Construction</u> : Promote the Savings by Design Program from SCE	I	93	0.5	\$47,215	\$1,000	\$10.75	1% of housing stock (100 homes), 16,000 avg kWh usage, 20% kWh savings (3,200 kWh), 1% of commercial stock (8 bldgs.), 40,700 avg kWh usage, 40% kWh savings (16,000 kWh) saving 448,000 kWh
LIVE - 7	Residential Buildings	<u>Energy-Efficient Lighting</u> : Seek grant funding through the DCEP to distribute 2,000 compact fluorescent and LED lamps for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	II	279	2.0	\$200,376	\$3,000	\$10.75	2,000 bulbs resulting in 88,000 kWh annual savings. Each bulb costs \$1.50 and saves 44 kWh/yr.; program administration assumed at \$3,000. Each bulb given away leverages an additional 10 purchased through leveraging effect resulting in 880,000 kWh annual savings for a total of 968,000 kWh saved annually
WORK - 1	Commercial Buildings	<u>Commercial Energy Audits</u> : Work with DCEP to promote energy audits for 250,000 square feet of commercial buildings and confirm replacement/upgrade schedules	II	183	0.6	\$63,664	\$2,000	\$10.93	250,000 sq. ft. community wide (approx. 25 buildings), 15.6 kWh/sq. ft. usage .35 therms/sq. ft. usage, achieve 10% electricity and natural gas savings post-audit, savings of 389,500 kWh and 8,750 therms

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
WORK - 8	Commercial Buildings	<u>Commercial On-Bill Financing/Repayment</u> : Encourage On-Bill Financing/Repayment through SCE, Southern California Gas with green messaging and teamwork in the community	I	180	0.8	\$76,028	\$2,000	\$11.11	Efficiency upgrades to 125,000 sq. ft. of commercial space...30% reduction in elec. 5% reduction in natural gas resulting in savings of 585,000 kWh/yr. and 2,187 therms Nat Gas/yr. Assume about 25 businesses
LIVE - 12	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 77% by 2015	I	393	0.5	\$50,000	\$5,000	\$12.72	2009 diversion rate of 72.8% and characterization study (2008) from Cal-Recycle with consultant calculations then entered into the CACP software. consultant assumption on savings dollars
GOVERN - 11	Renewable Energy	<u>Solar Ready Ordinance</u> : Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	\$217,666	\$5,000	\$13.19	50 homes with 10kw solar PV (5.5 sun hours a day) resulting in 1,063,750 kWh/\$207,776 production annually, 50 homes with solar DHW (avg. 50 gals a day usage) resulting in 23,232 kWh/\$4,809 and 4,793 therms/\$5,080 savings annually
LIVE - 9	Residential Buildings	<u>Household Efficiency Audits</u> : Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self-audit" homes	I	185	1.0	\$104,031	\$2,500	\$13.51	Assume 500 homes reached and a 10% reduction (897 kWh and 21 therms per home) resulting in 448,800 kWh and 10,500 therms saved annually
WORK - 11	Transportation	<u>Telecommuting</u> : Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Blythe	I	147	0.5	\$54,579	\$2,000	\$13.61	CAPPA Calc for Telecommuting, 200 telecommuting employees, one day a week, 16 miles one-way, 19.7 mpg, 15,594 gal gas saved /year (\$3.50/gal. of gas)
WORK - 3	Commercial Buildings	<u>Energy-Efficient, Commercial-Sector Lighting</u> : Promote and leverage existing SCE incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	II	176	0.6	\$64,732	\$2,500	\$14.20	250,000 sq. ft. of facilities retrofitted with efficient lighting, electricity cost of \$0.126/kWh, annual lighting usage of 6.85 kWh/sq. ft. , 30% savings with retrofit of 513,750 kWh/yr.
GOVERN - 10	Renewable Energy	<u>Roof-Mounted Wind Systems</u> : Support, promote, and enable the installation of 2,000 roof-mounted wind turbines on private property by 2020	I	2,917	15.7	\$1,573,200	\$50,000	\$17.14	6,667 kW of distributed wind installed producing 10,133,080 kWh
MOBILITY - 8	Transportation	<u>Van Pools</u> : Partner and recognize all Blythe major employers with over 25 employees for van pools	II	281	1.0	\$104,468	\$5,000	\$17.79	500 employees offered carpool/vanpool, 10% reduction in commute vehicle trips, 25 mile avg. one-way length, 19.7 mpg avg fuel economy...resulting in 588,000 VMT reduction, 29,848 gallons of gas savings annually (\$3.50/gal. of gas)

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
WORK - 4	Commercial Buildings	<u>SCE Business Incentives</u> : Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	0.5	\$49,140	\$2,000	\$17.86	Efficiency upgrades to 125,000 sq. ft. of commercial space...20% reduction in electricity resulting in savings of 390,000 kWh/yr. Assume about 25 companies
GOVERN - 1	Cross-Cutting Initiatives	<u>Energy Management Position</u> : Designate a staff member to continue working on Environmental Management and Sustainability projects to promote energy efficiency and carbon savings	II	741	1.0	\$100,000	\$15,000	\$20.24	Additional 1% of citywide GHG emissions over specific programs run
WORK - 6	Commercial Buildings	<u>"The Temperature Club"</u> : Promote community partnership through policies to adjust indoor temperatures to save/degree	I	97	0.5	\$48,450	\$2,000	\$20.62	100 businesses participating with 4000 kWh/yr. and 100 therms/yr. reductions, each resulting in 400,000 kWh and 10,000 therms annual savings.
BUILD - 6	Government Initiatives	<u>Plan Checks and Permitting</u> : Expedite plan checks for green building projects and major green remodels	I	47	0.0	\$0	\$1,000	\$21.28	1% of housing stock (54 homes), 8,976 avg kWh usage, 20% kWh savings (1,795 kWh), 1% of commercial stock (4 bldgs.), 40,700 avg kWh usage, 40% kWh savings (16,000 kWh), total of 162,050 kWh saved
BUILD - 1	Commercial Buildings	<u>Sustainable Parking Lots</u> : Program to reduce the heat island effect through the promotion of parking lot coverings and coatings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	45	0.2	\$23,366	\$1,000	\$22.22	200,000 sq. ft. conditioned space community wide (approx. 25 bldgs.), 15.6 kWh/sq. ft. usage, achieve 5% electricity savings with new parking lots, saving 156,000 kWh
MOBILITY - 7	Transportation	<u>Buses and Shuttles</u> : Partner and collaborate with Palo Verde Transit, local employers (such as the prisons), the college and popular tourist destinations to increase ridership, improve rider efficiency and improve routing on local and regional transit routes.	II	111	1.3	\$127,099	\$2,500	\$22.52	200 new daily transit passengers, 9.8 miles avg. trip length, 19.7 mpg vehicle displaced saving 715,400 annual vehicle mile reduction, 36,314 gallons of gas (\$3.50/gal. of gas)
MOBILITY - 9	Transportation	<u>Electric Vehicles</u> : Design and promote a Pilot Neighborhood Electric Vehicle program supporting and encouraging residents to lease and purchase electric vehicles in the community potentially with recognition and preferential parking for participants.	II	836	3.1	\$310,821	\$21,000	\$25.12	125 new electric cars, 19.7 mpg vehicle replaced, 10,000 average annual miles per vehicle, \$0.207/kWh saving 63,425 gallons of gas. 100 NEVs assuming 5,000 miles each annually, saving 253 gallons gasoline per vehicle resulting in 25,381 saved annually (\$3.50/gal. of gas)

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LIVE - 2	Government Initiatives	<u>Water Conservation Ordinance</u> : Build on and exceed current water conservation activities in the residential sector by 15% community-wide by 2020	I	32	0.5	\$52,438	\$1,000	\$31.25	1,000 home target, 350 gal/home/day, 15% savings under ordinance, domestic water cost of \$.0025/gallon, avg. .0054 kWh energy use per gallon. 30,922,927 gal saved, 166,983 kWh saved
LEARN - 1	Commercial Buildings	<u>Commercial Sector Green Building</u> : Target and work with minimum of 50 businesses for Green Business Program	II	300	0.9	\$91,901	\$10,000	\$33.33	50 businesses targeted, 11,500 kWh and 367 therms saved annually, \$.0126/kWh, \$1.09/therm saving 575,000 kWh, 18,350 therms,
RECREATE - 5	Water	<u>Drought-Tolerant Landscaping</u> : Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	27	0.1	\$9,934	\$1,000	\$37.04	1-18 hole golf courses in Blythe, assume average of 200,000 gal/day...average of 2% energy savings achieved...saving 78,840 kWh/yr.
MOBILITY - 2	Transportation	<u>Alternative Fueling Stations</u> : Complete and promote 2 "in process" CNG fueling stations for municipal fleet and public use	I	129	0.5	\$50,000	\$5,000	\$38.76	Assume 2 CNG stations will initially support 100 vehicles
MOBILITY - 11	Transportation	<u>Senior Vehicle Tune-Ups</u> : Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	118	0.1	\$5,827	\$5,000	\$42.37	Assume 50 tune ups a year from 2 "Tune-Up Drives" saving 10% of the fuel of a 5,000 VMT senior vehicle getting 15 mpg, 1,665 gallons of gas saved/yr. for 8 years. Total 13,320 gallons saved. (\$3.50/gal. of gas)
LEARN - 2	Cross-Cutting Initiatives	<u>Green Building Lectures and Continuing Education</u> : Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	I	110	0.6	\$55,840	\$5,000	\$45.45	4 new homes added annually 468,000 kWh and 10,500 therms saved annually
MOBILITY - 4	Transportation	<u>Eco-Conscious Driving</u> : Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance. AKA "hyper-miling."	II	94	0.4	\$35,000	\$5,000	\$53.19	400 participants who travel 10,000 miles per year in a vehicle that averages 19.7 mpg, saves 5% or 25 gallons per year after implementing eco-conscious driving behavior. (\$3.50/gal. of gas)
RECREATE - 6	Water	<u>Golf Course Water Management Recognition</u> : Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	81	1.0	\$101,875	\$5,000	\$61.73	CAPPA Calc for Irrigation Control Sensors, 250 acres of lawn with irrigation control sensors, \$.0025/gal of water, 652,000 gallons of water used per acre, .0035 kWh used per gal, 25% water savings resulting in 40,750,000 gal saved, 142,625 kWh saved.
GOVERN - 5	Government Initiatives	<u>Utility Manager Software</u> : Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	75	0.3	\$32,582	\$5,000	\$66.67	5% of Municipal Electricity and Natural Gas 255,650 kWh and 350 Therms
WORK - 5	Commercial Buildings	<u>Integrated Lighting Systems</u> : Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 200,000 square feet of commercial space	II	164	1.0	\$99,256	\$12,000	\$73.17	200,000 sq. ft. of facilities retrofitted with efficient lighting, electricity cost of \$.0126/kWh, annual lighting usage of 6.85 kWh/sq. ft. , 35% lighting savings with retrofit of 479,500 kWh

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
MOBILITY - 6	Transportation	<u>Buses</u> : Promote the benefits of buses to increase ridership by 500 riders by providing promotions and incentives for new riders such as vouchers	II	278	3.2	\$317,755	\$25,000	\$89.93	500 new daily transit passengers, 9.8 mile avg one-way commute savings of 90,787 gallons/yr. Palo Verde Transit Agency reported 27,060 passengers on all routes in 2010. Provide try it vouchers for \$50 "to try for a month" (\$3.50/gal. of gas)
MOBILITY - 3	Transportation	<u>Alternative Fueling Stations</u> : Foster public/private partnerships to promote the installation of 2 additional CNG fueling stations and 2 EV charging stations for CNG and EV fleets	III	133	1.0	\$100,000	\$12,000	\$90.23	2 EV charging station spaces will save 477.6 gallons of gas. Assume 2 CNG stations will initially support 100 vehicles (\$3.50/gal. of gas)
LIVE - 6	Residential Buildings	<u>Pool Pumps</u> : Promote SCE program offering rebates on high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 100 units	III	49	0.4	\$35,438	\$5,000	\$102.04	100 pumps with 1,712 kWh/yr. savings per pump resulting in 171,200 kWh/yr., \$0.207/kWh
BUILD - 9	Residential Buildings	<u>Green Home Tours</u> : Encourage Chamber of Commerce to administer "Green Homes Tours" annually to showcase six projects each year	II	39	0.5	\$47,215	\$4,000	\$102.56	Provide tours at minimal cost to local homes and businesses, 1 tour a year...Assumes tours and publicity stimulates 25 additional green homes to existing programs in the City. provides a pipeline of 25 Green homes to programs 40% kWh savings 30% therm savings
WORK - 9	Solid Waste	<u>Food Waste Composting at Restaurants</u> : Coordinate with waste hauler to support and promote restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	19	0.2	\$20,817	\$2,000	\$105.26	Assume 300 lbs. saved/per cap/yr.....assume \$1.00 savings per cap/yr.
GOVERN - 3	Government Initiatives	<u>Municipal Facility Efficiency Upgrades...Payback Threshold Policy</u> : Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	347	1.5	\$151,745	\$41,900	\$120.75	Municipal upgrades (detailed in EAP) with a payback of less than 4 years produce an annual kWh savings of 1,204,327 kWh realizing over 100% of the EAP Energy Efficiency Goal of 406,965 kWh
LIVE - 4	Government Initiatives	<u>Landscaper Certification</u> : Require 100% of licensed landscapers to be certified by CVAG, including annual training	II	39	0.5	\$48,900	\$5,000	\$128.21	30% savings in landscaping water usage, 100 acres of lawn in the community, 652,000 gallons of water used per acre, \$0.0025 price per gallon of water, 0.0035/kWh per gallon
LEARN - 3	Cross-Cutting Initiatives	<u>Community Energy Champions</u> : Solicit nominations and promote a Community Energy Champion each year to show value of efficiency and its energy, dollar, and carbon savings	II	15	0.2	\$21,630	\$2,000	\$133.33	Public Relations and Education project stimulating at least 15 untapped homeowners to take significant efficiency action in their homes to save 30% electricity and 5% Nat Gas

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
LEARN - 9	Special Focus Area	<u>Agricultural Process Equipment Efficiency</u> : Leverage DCEP and other potential Palo Verde Valley partnerships to promote agricultural process emission reductions targeted at electricity and natural gas efficiency	III	11	0.0	\$3,580	\$2,000	\$181.82	Assume 20,000 kWh and 1,000 therms savings annually through the efficiency, improvement and replacement of agricultural process electric motors, natural gas fired process boilers/heaters and pumps
BUILD - 5	Government Initiatives	<u>Green Building Support Services</u> : Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	III	274	1.3	\$134,697	\$50,000	\$182.48	50 new or "gut-rehab" homes at 3,000 square feet average...assume 25% savings...result of 583,500 kWh and 13,125 therms saved annually
GOVERN - 7	Government Initiatives	<u>Retro Commissioning</u> : Abide by the Commissioning/Retro-commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	5	0.0	\$1,982	\$1,000	\$200.00	2% of Municipal Electricity and Natural Gas 14,172 kWh and 140 therms
GOVERN - 12	Transportation	<u>Electric Vehicle Charging Stations</u> : Seek grant funding and private sector partnerships to install 2 EV charging stations on public and private property	I	4	0.0	\$1,670	\$1,000	\$250.00	2 EV charging stations will save 477 gallons of gas used for business commuting (\$3.50/gal. of gas)
BUILD - 8	Residential Buildings	<u>Affordable Housing</u> : Promote the construction of energy-efficient affordable housing with private-sector partners	II	94	0.4	\$43,993	\$25,000	\$265.96	100 new housing units, 7,400 kWh and 215 therm/yr., 25% savings/185,000 kWh and 5,375 therms
LEARN - 7	Special Focus Area	<u>Agricultural Equipment Fuel Conversion</u> : Seek special agricultural grant funding to offer pilot program for agricultural off-road and support equipment to shift fuel sources (CNG, Propane or Electric)	I	7	0.0	\$2,000	\$2,000	\$271.37	Assume a 10% reduction (7.37 tonnes) of the overall Citywide off-road emissions (73 tonnes) as reported in the 2010 Greenhouse Gas Inventory
GOVERN - 14	Water	<u>Waste Water Treatment Facility Pump Upgrades</u> : Continue collaboration with DCEP and SCE on auditing services and pump upgrade prioritization for Blythe's Waste Water Treatment Facility	I	86	0.2	\$18,000	\$27,000	\$313.95	Based on SCE Energy Audit preliminary results, an annual savings of 300,000 kWh has been assessed for the facility. Implement energy efficiency measures in to reach savings potential. Assume 18 month payback (per SCE) and a pumping rate of \$0.06/kWh
GOVERN - 8	Government Initiatives	<u>Group Purchasing</u> : Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	5	0.2	\$20,000	\$2,000	\$400.00	Assume additional measures undertaken from \$10,000 of savings to achieve 250,000 kWh savings
RECREATE - 1	Government Initiatives	<u>Ball field Lighting</u> : Explore permit fees for night time ball field usage	II	15	0.1	\$5,519	\$10,000	\$666.67	Assume reduction of night usage averaging 40 high-pressure sodium lamps cut back 2 hrs. every day 43,800 kWh
BUILD - 2	Commercial Buildings	<u>"Cool Roofs"</u> : Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	II	15	0.1	\$8,714	\$15,000	\$1,000.00	50,000 sq. ft. of roof installed, \$0.126/kWh, \$1.06/therm, \$0.25/sq. ft. of incremental cost of Energy Star roofing saving 42,100 kWh



Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	Assumptions
GOVERN - 6	Government Initiatives	<u>Benchmarking</u> : Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	5	0.0	\$1,982	\$5,000	\$1,000.00	2% of Municipal Electricity and Natural Gas 14,172 kWh and 140 therms
BUILD - 7	Residential Buildings	<u>Shade Trees</u> : Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	\$12,240	\$56,000	\$1,600.00	250 trees privately planted and 250 trees publicly planted, \$0.126/kWh, 204 kWh saved per mature tree annually, \$224 to plant each tree (CAPP default) saves 102,000 kWh
LIVE - 3	Government Initiatives	<u>Gray water-Ready Ordinance</u> : Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	III	3	0.0	\$26	\$5,000	\$1,678.42	50 new homes, use of 350 gal/home/day, 30% savings under ordinance, domestic water cost of \$0.0025/gallon, avg, .0054 kWh energy use per gallon.
LEARN - 4	Cross-Cutting Initiatives	<u>Internships</u> : Provide student internships in city government each year to focus on updates to the GHG inventory and the climate action plan and to promote energy efficiency in Blythe	II	2	0.0	\$0	\$5,000	\$2,500.00	Workforce Development and Riverside County Employment Development Agency
LEARN - 5	Cross-Cutting Initiatives	<u>Workforce Development</u> : Promote workforce development in partnership with Palo Verde College, College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0	\$0	\$10,000	\$5,000.00	Workforce Development and Riverside County Employment Development Agency
GOVERN - 4	Government Initiatives	<u>Municipal Facility Efficiency Upgrades</u> : Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	51	0.2	\$22,490	\$329,510	\$6,460.98	Implement the remaining 178,495 kWh savings developed in EAP. (2015 -2020) Total EAP savings measures (kWh) = 1,382,822 kWh
MOBILITY - 5	Transportation	<u>Bike, Walking, NEV</u> : Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	III	12	0.0	\$4,620	\$100,000	\$8,333.33	500 weekly trips switching from cars to walking/biking, avg distance 1 mile, 19.7 mpg car displaced, saving 1,320 gallons of gas (\$3.50/gal. of gas)

GRAND TOTAL OF EMISSION MEASURES	74	25,660	104	\$10,415,969	\$986,210
2020 EMISSIONS REDUCTION TARGET		25,429			
EMISSIONS LEFT		-231			

Surplus of emissions reduction measures



## Appendix C: Savings Measures Analysis by Least Cost

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	kWh Savings
WORK - 2	Commercial Buildings	<u>Peak Demand Reduction</u> : Collaborate with SCE and encourage 50 businesses to enroll in Energy Efficiency and Demand Response programs such as the Summer Discount Program	I	96	0.5	\$48,450	\$1,000	\$10.42	400,000
BUILD - 3	Commercial Buildings	<u>New and Efficient Construction</u> : Promote the Savings by Design Program from SCE	I	93	0.5	\$47,215	\$1,000	\$10.75	451,200
BUILD - 1	Commercial Buildings	<u>Sustainable Parking Lots</u> : Program to reduce the heat island effect through the promotion of parking lot coverings and coatings and semi permeable surfaces for new construction to achieve 20% of existing parking lots, and 80% of new parking lots	II	45	0.2	\$23,366	\$1,000	\$22.22	156,000
LIVE - 1	Government Initiatives	<u>Plan Checking and Permitting</u> : Expedite plan check process for energy-efficiency measures and remodels and renewable energy installations to reduce carbon emissions	II	207	1.4	\$141,909	\$1,000	\$4.83	672,750
BUILD - 6	Government Initiatives	<u>Plan Checks and Permitting</u> : Expedite plan checks for green building projects and major green remodels	I	47	0.0	\$0	\$1,000	\$21.28	162,050
LIVE - 2	Government Initiatives	<u>Water Conservation Ordinance</u> : Build on and exceed current water conservation activities in the residential sector by 15% community-wide by 2020	I	32	0.5	\$52,438	\$1,000	\$31.25	166,983
GOVERN - 7	Government Initiatives	<u>Retro Commissioning</u> : Abide by the Commissioning/Retro-commissioning (RCx) Policy and guidelines for qualifying municipal buildings	I	5	0.0	\$1,982	\$1,000	\$200.00	14,172
GOVERN - 13	Transportation	<u>Transit Oriented Development</u> : Promote transit oriented development to foster development in line with mass transit corridors	II	349	0.3	\$34,900	\$1,000	\$2.87	
GOVERN - 12	Transportation	<u>Electric Vehicle Charging Stations</u> : Seek grant funding and private sector partnerships to install 2 EV charging stations on public and private property	I	4	0.0	\$1,670	\$1,000	\$250.00	
RECREATE - 4	Water	<u>Irrigation System Controls</u> : Promote the installation of irrigation control sensors at parks and golf courses	I	102	1.3	\$127,140	\$1,000	\$9.80	177,996
RECREATE - 5	Water	<u>Drought-Tolerant Landscaping</u> : Promote reduced need for golf course irrigation through design and use of drought-tolerant plants	I	27	0.1	\$9,934	\$1,000	\$37.04	78,840
WORK - 1	Commercial Buildings	<u>Commercial Energy Audits</u> : Work with DCEP to promote energy audits for 250,000 square feet of commercial buildings and confirm replacement/upgrade schedules	II	183	0.6	\$63,664	\$2,000	\$10.93	389,500

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	kWh Savings
WORK - 8	Commercial Buildings	<u>Commercial On-Bill Financing/Repayment</u> : Encourage On-Bill Financing/Repayment through SCE, Southern California Gas with green messaging and teamwork in the community	I	180	0.8	\$76,028	\$2,000	\$11.11	585,000
WORK - 4	Commercial Buildings	<u>SCE Business Incentives</u> : Promote and leverage existing incentives for efficient lighting and energy efficiency upgrades for small businesses through SCE's Express Solutions Program, for specific industries such as Hospitality, Gov./Institutions, Office, Retail, Small Business, Water Wastewater through SCE's Energy Management Solutions program, and partner with SCE for large businesses through the Continuous Energy Improvement Program (savings from non-PACE-funded projects)	I	112	0.5	\$49,140	\$2,000	\$17.86	390,000
WORK - 6	Commercial Buildings	<u>"The Temperature Club"</u> : Promote community partnership through policies to adjust indoor temperatures to save/degree	I	97	0.5	\$48,450	\$2,000	\$20.62	400,000
LEARN - 3	Cross-Cutting Initiatives	<u>Community Energy Champions</u> : Solicit nominations and promote a Community Energy Champion each year to show value of efficiency and its energy, dollar, and carbon savings	II	15	0.2	\$21,630	\$2,000	\$133.33	
GOVERN - 2	Government Initiatives	<u>Desert Cities Energy Partnership</u> : Continue to actively partner with serving utilities to fully utilize energy efficiency and demand response programs in municipal facilities	I	380	1.7	\$166,291	\$2,000	\$5.26	1,319,775
GOVERN - 8	Government Initiatives	<u>Group Purchasing</u> : Promote and participate in group purchasing of energy efficiency goods and services with other CVAG cities/tribes	II	5	0.2	\$20,000	\$2,000	\$400.00	250,000
LEARN - 6	Residential Buildings	<u>Save a Ton Campaign</u> : Work with CVAG to develop and locally market the Save a Ton campaign, unlocking energy, dollar, and carbon savings in 30% of the housing stock	I	598	3.4	\$339,488	\$2,000	\$3.34	1,471,977
LIVE - 11	Residential Buildings	<u>On-Bill Finance/Repayment</u> : Partner with SCE and SCG to locally promote on-bill financing/repayment for residential energy efficiency retrofits in 15% of housing stock	II	287	0.7	\$72,147	\$2,000	\$6.97	2,942,160
RECREATE - 2	Residential Buildings	<u>Comprehensive Pool Efficiency</u> : Promote comprehensive pool efficiency including variable speed pool pumps, covers, wind breaks, and solar heating	I	246	1.8	\$177,192	\$2,000	\$8.13	856,000
LIVE - 8	Residential Buildings	<u>Peak Demand Reduction</u> : Partner with SCE to provide local promotion of the residential Summer Discount Program to cut peak demand in 30% of the housing stock	I	212	1.5	\$152,179	\$2,000	\$9.43	735,168

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WORK - 9	Solid Waste	<u>Food Waste Composting at Restaurants:</u> Coordinate with waste hauler to support and promote restaurant composting program for food waste to reach all restaurants that serve more than 100 meals a day	II	19	0.2	\$20,817	\$2,000	\$105.26	
LEARN - 8	Special Focus Area	<u>Agricultural Fertilizer Reduction:</u> Identify strategies to promote low-emissions agricultural practices that strengthens Blythe's role as a regional agricultural leader with an initial pilot program focus on fertilization and crop rotation strategies	I	298	0.1	\$10,000	\$2,000	\$6.71	
LEARN - 9	Special Focus Area	<u>Agricultural Process Equipment Efficiency:</u> Leverage DCEP and other potential Palo Verde Valley partnerships to promote agricultural process emission reductions targeted at electricity and natural gas efficiency	III	11	0.0	\$3,580	\$2,000	\$181.82	20,000
LEARN - 7	Special Focus Area	<u>Agricultural Equipment Fuel Conversion:</u> Seek special agricultural grant funding to offer pilot program for agricultural off-road and support equipment to shift fuel sources (CNG, Propane or Electric)	I	7	0.0	\$2,000	\$2,000	\$271.37	
WORK - 10	Transportation	<u>Employee Shuttles, Van Pools, and Car Pools:</u> Support and expand on existing programs (Palo Verde Transit, Van Pools to prisons) to target employer and employee participation with a goal of 200 additional participants. In addition to savings...grants can be accessed and funds created to provide the security of a "guaranteed-ride home"	I	229	0.9	\$85,278	\$2,000	\$8.73	
MOBILITY - 12	Transportation	<u>Anti-Idling:</u> Pass ordinance that restricts idling of greater than 5 minutes for all commercial vehicles in specific zones. In accordance with CARB rules regarding idling of commercial vehicles	II	229	1.0	\$96,000	\$2,000	\$8.73	
WORK - 11	Transportation	<u>Telecommuting:</u> Promote telecommuting and flex-time for local businesses to achieve and track 200 teleworkers in Blythe	I	147	0.5	\$54,579	\$2,000	\$13.61	
WORK - 3	Commercial Buildings	<u>Energy-Efficient, Commercial-Sector Lighting:</u> Promote and leverage existing SCE incentives for efficient lighting and educate and locally incent building owners to eliminate any remaining T-12 lamps in commercial buildings	II	176	0.6	\$64,732	\$2,500	\$14.20	513,750
BUILD - 4	Government Initiatives	<u>Green Building Program:</u> Promote the Voluntary Green Building Program to prepare for enhanced Title 24 requirements and green building standards	I	274	1.3	\$134,697	\$2,500	\$9.12	583,500

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LIVE - 10	Residential Buildings	<u>Residential PACE</u> : Partner and aggressively promote Residential PACE Program to reach 10% of homes with property-secured funding for 100% of the cost of energy upgrades and renewable energy systems	I	977	5.8	\$577,235	\$2,500	\$2.56	672,750
LIVE - 9	Residential Buildings	<u>Household Efficiency Audits</u> : Partner with SCE and SCG to provide local promotion for the Home Energy Efficiency Survey to "self audit" homes	I	185	1.0	\$104,031	\$2,500	\$13.51	448,800
MOBILITY - 7	Transportation	<u>Buses and Shuttles</u> : Partner and collaborate with Palo Verde Transit, local employers (such as the prisons), the college and popular tourist destinations to increase ridership, improve rider efficiency and improve routing on local and regional transit routes.	II	111	1.3	\$127,099	\$2,500	\$22.52	
LIVE - 7	Residential Buildings	<u>Energy-Efficient Lighting</u> : Seek grant funding through the DCEP to distribute 2,000 compact fluorescent and LED lamps for giveaways to demonstrate their value in homes and leverage ten times the number in household and business applications	II	279	2.0	\$200,376	\$3,000	\$10.75	968,000
LIVE - 5	Renewable Energy	<u>Solar "Champion"</u> : Promote solar photovoltaic systems and solar thermal systems for residential homeowners to develop 200 "Solar Champion" systems	II	1,516	4.4	\$435,332	\$4,000	\$2.64	195,151
BUILD - 9	Residential Buildings	<u>Green Home Tours</u> : Encourage Chamber of Commerce to administer "Green Homes Tours" annually to showcase six projects each year	II	39	0.5	\$47,215	\$4,000	\$102.56	
WORK - 7	Commercial Buildings	<u>Commercial PACE Program</u> : Partner and aggressively promote commercial PACE program to provide commercial property owners —from retail to resorts—with property-secured funding for 100% of the cost of energy efficiency upgrades/renewable energy installations	III	613	2.6	\$260,251	\$5,000	\$8.16	2,009,516
LEARN - 2	Cross-Cutting Initiatives	<u>Green Building Lectures and Continuing Education</u> : Provide lectures, seminars and training on green building based on training materials emphasizing desert conditions and opportunities	I	110	0.6	\$55,840	\$5,000	\$45.45	468,000
LEARN - 4	Cross-Cutting Initiatives	<u>Internships</u> : Provide student internships in city government each year to focus on updates to the GHG inventory and the climate action plan and to promote energy efficiency in Blythe	II	2	0.0	\$0	\$5,000	\$2,500.00	

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	kWh Savings
GOVERN - 5	Government Initiatives	<u>Utility Manager Software</u> : Maximize use of the Los Angeles County Energy Enterprise Management Information System (EEMIS) to manage municipal facilities	I	75	0.3	\$32,582	\$5,000	\$66.67	255,650
LIVE - 4	Government Initiatives	<u>Landscaper Certification</u> : Require 100% of licensed landscapers to be certified by CVAG, including annual training	II	39	0.5	\$48,900	\$5,000	\$128.21	68,460
GOVERN - 6	Government Initiatives	<u>Benchmarking</u> : Abide by Energy Benchmarking Policy to gauge relative energy use and efficiency of municipal facilities	I	5	0.0	\$1,982	\$5,000	\$1,000.00	14,172
LIVE - 3	Government Initiatives	<u>Gray water-Ready Ordinance</u> : Require all new residential development to be constructed for easy implementation of gray water systems that redirect water from wash basins, showers, and tubs	III	3	0.0	\$26	\$5,000	\$1,678.42	28
GOVERN - 11	Renewable Energy	<u>Solar Ready Ordinance</u> : Develop and implement an ordinance requiring 100% of new homes be solar ready (PV)	II	379	2.2	\$217,666	\$5,000	\$13.19	1,086,982
LIVE - 6	Residential Buildings	<u>Pool Pumps</u> : Promote SCE program offering rebates on high-efficiency, variable speed pool pumps to households at community fairs and retail outlets to achieve a minimum of 100 units	III	49	0.4	\$35,438	\$5,000	\$102.04	171,200
LIVE - 13	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 87% by 2020	III	707	1.0	\$100,000	\$5,000	\$7.07	
LIVE - 12	Solid Waste	<u>Solid Waste Diversion</u> : Increase solid waste diversion to achieve an average annual goal of 77% by 2015	I	393	0.5	\$50,000	\$5,000	\$12.72	
RECREATE - 3	Transportation	<u>Visitor Shuttles</u> : Collaborate with the Palo Verde Transit, the Chamber of Commerce, local hospitality and tourist attractions to seek grants, and other financial opportunities to promote visitor and special event shuttles between key locations	II	872	0.4	\$38,869	\$5,000	\$5.73	
MOBILITY - 10	Transportation	<u>Car Sharing</u> : Support and promote a local committee to attract and initiate a subscriber-based pilot CarShare program in Blythe with city-providing only "home parking spots" with signage for publicly available vehicles with a goal to serve 5% of existing drivers who each reduce their driving by 25%	II	579	2.2	\$215,356	\$5,000	\$8.64	
MOBILITY - 8	Transportation	<u>Van Pools</u> : Partner and recognize all Blythe major employers with over 25 employees for van pools	II	281	1.0	\$104,468	\$5,000	\$17.79	

Sphere	GHG Sector Focus Area Linkage	Measure	Phase	Annual Savings (Tonnes CO <sub>2</sub> e)	Job Creation Estimate	Annual Savings	Estimated Implementation Cost to City	Efficacy (\$/tonne CO <sub>2</sub> e)	kWh Savings
MOBILITY - 2	Transportation	<u>Alternative Fueling Stations</u> : Complete and promote 2 "in process" CNG fueling stations for municipal fleet and public use	I	129	0.5	\$50,000	\$5,000	\$38.76	
MOBILITY - 11	Transportation	<u>Senior Vehicle Tune-Ups</u> : Introduce and implement "Senior Vehicle Diagnostic Program" to target and incentivize seniors to tune and maintain their vehicles on a regular basis	III	118	0.1	\$5,827	\$5,000	\$42.37	
MOBILITY - 4	Transportation	<u>Eco-Conscious Driving</u> : Promote eco-conscious driving behavior to increase fuel efficiency by 5 - 10% and minimize emissions and maintenance. AKA "hyper-miling."	II	94	0.4	\$35,000	\$5,000	\$53.19	
RECREATE - 6	Water	<u>Golf Course Water Management Recognition</u> : Promote highly efficient irrigation sensors, water pumping and delivery for golf courses with Council recognition	II	81	1.0	\$101,875	\$5,000	\$61.73	
GOVERN - 9	Renewable Energy	<u>Solar Public/Private Partnerships</u> : Explore private-public partnerships for renewable energy installations on public land (performance-based contracts and power purchase agreements).	III	6,192	22.8	\$2,276,505	\$8,000	\$1.29	18,067,500
MOBILITY - 1	Transportation	<u>Hybrid Vehicles</u> : Promote the purchase of hybrid vehicles in the community potentially with recognition and preferential parking for participants with a target of 300 hybrids by 2020	III	820	1.5	\$152,250	\$8,300	\$10.12	
LEARN - 1	Commercial Buildings	<u>Commercial Sector Green Building</u> : Target and work with minimum of 50 businesses for Green Business Program	II	300	0.9	\$91,901	\$10,000	\$33.33	575,000
LEARN - 5	Cross-Cutting Initiatives	<u>Workforce Development</u> : Promote workforce development in partnership with Palo Verde College, College of the Desert, UCR, and CSUSB to achieve 500 "green careers" by 2020	II	2	0.0	\$0	\$10,000	\$5,000.00	
RECREATE - 1	Government Initiatives	<u>Ball field Lighting</u> : Explore permit fees for night time ball field usage	II	15	0.1	\$5,519	\$10,000	\$666.67	43,800
WORK - 5	Commercial Buildings	<u>Integrated Lighting Systems</u> : Promote SCE's Energy Management Solutions' energy-efficient lighting linked to building controls and occupancy sensors in minimum of 200,000 square feet of commercial space	II	164	1.0	\$99,256	\$12,000	\$73.17	479,500
MOBILITY - 3	Transportation	<u>Alternative Fueling Stations</u> : Foster public/private partnerships to promote the installation of 2 additional CNG fueling stations and 2 EV charging stations for CNG and EV fleets	III	133	1.0	\$100,000	\$12,000	\$90.23	

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BUILD - 2	Commercial Buildings	"Cool Roofs": Promote the installation of reflective roofing on commercial properties in the community with recognition for first ten early adopters	II	15	0.1	\$8,714	\$15,000	\$1,000.00	42,100
GOVERN - 1	Cross-Cutting Initiatives	Energy Management Position: Designate a staff member to continue working on Environmental Management and Sustainability projects to promote energy efficiency and carbon savings	II	741	1.0	\$100,000	\$15,000	\$20.24	
MOBILITY - 9	Transportation	Electric Vehicles: Design and promote a Pilot Neighborhood Electric Vehicle program supporting and encouraging residents to lease and purchase electric vehicles in the community potentially with recognition and preferential parking for participants.	II	836	3.1	\$310,821	\$21,000	\$25.12	
BUILD - 8	Residential Buildings	Affordable Housing: Promote the construction of energy-efficient affordable housing with private-sector partners	II	94	0.4	\$43,993	\$25,000	\$265.96	185,000
MOBILITY - 6	Transportation	Buses: Promote the benefits of buses to increase ridership by 500 riders by providing promotions and incentives for new riders such as vouchers	II	278	3.2	\$317,755	\$25,000	\$89.93	
GOVERN - 14	Water	Waste Water Treatment Facility Pump Upgrades: Continue collaboration with DCEP and SCE on auditing services and pump upgrade prioritization for Blythe's Waste Water Treatment Facility	I	86	0.2	\$18,000	\$27,000	\$313.95	300,000
GOVERN - 3	Government Initiatives	Municipal Facility Efficiency Upgrades...Payback Threshold Policy: Establish energy policy within City's Energy Action Plan to invest in measures with less than a four-year, simple payback	I	347	1.5	\$151,745	\$41,900	\$120.75	1,204,327
BUILD - 5	Government Initiatives	Green Building Support Services: Advance the Voluntary Green Building Program to mandatory green building requirement with technical support services	III	274	1.3	\$134,697	\$50,000	\$182.48	583,500
GOVERN - 10	Renewable Energy	Roof-Mounted Wind Systems: Support, promote, and enable the installation of 2,000 roof-mounted wind turbines on private property by 2020	I	2,917	15.7	\$1,573,200	\$50,000	\$17.14	10,133,080
BUILD - 7	Residential Buildings	Shade Trees: Promote properly sited and selected shade trees in 100% of new construction to reduce heat islands and provide shade to offset air conditioning	III	35	0.1	\$12,240	\$56,000	\$1,600.00	102,000
MOBILITY - 5	Transportation	Bike, Walking, NEV: Expand bikeways, trails, and walking paths connecting residential neighborhoods and commerce	III	12	0.0	\$4,620	\$100,000	\$8,333.33	

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GOVERN - 4	Government Initiatives	<u>Municipal Facility Efficiency Upgrades</u> : Complete 100% of remaining Energy Action Plan measures developed in EAP (2015-2020)	III	51	0.2	\$22,490	\$329,510	\$6,460.98	178,495

GRAND TOTAL OF EMISSION MEASURES	74	25,660	104	\$10,415,969	\$986,210	50,989,832
2020 EMISSIONS REDUCTION TARGET		25,429				
EMISSIONS LEFT		-231				

Surplus of emissions reduction measures

## Appendix D: City of Blythe 2013 Greenhouse Gas Inventory

## Appendix E: City of Blythe 2013 Energy Action Plan